COMMITTEE WORKSHOP

BEFORE THE

CALIFORNIA ENERGY RESOURCES CONSERVATION

AND DEVELOPMENT COMMISSION

In the Matter of:	)
	)
Strategic Fuel Reserve	)
and Alternatives to Dampen	)
Price Volatility	)
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CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET

HEARING ROOM A

SACRAMENTO, CALIFORNIA

FRIDAY, APRIL 25, 2003

9:10 A.M.

Reported by:
Peter Petty
Contract No. 150-01-005

COMMISSIONERS PRESENT

James Boyd, Presiding Member

John L. Geesman, Associate Member

STAFF PRESENT:

Susan Bakker, Advisor to Boyd

Brian Covi, Contract Manager
Transportation Energy Division

Melissa Jones, Advisor to Geesman

Scott Matthews, Deputy Director
Transportation Energy Division

Pat Perez, Manager Transportation
Fuel Supply & Demand Office

Gordon Schremp, TED

Leigh Stamets, TED

Chris Kavalec, TED

Seymour Goldstone, TED

ALSO PRESENT

Dan Brusstar, NYMEX, via telephone

Tony Finizza, AJF Consulting

Thomas Gieskes, Stillwater Associates

David Hackett, Stillwater Associates

Gregg Haggquist, Stillwater Associates

Robert Hermes, Pervin & Gertz

Tony Hoff, ST Services

Drew Laughlin, Consultant, via telephone

Philip Verleger, PK Verleger, LLC

ALSO PRESENT

JEFFREY WILLIAMS, UC Davis

PUBLIC COMMENTS

Robert Lanza, ICF Consulting

Dwight Stevenson, Tesoro

Joe Sparano, WSPA

I N D E X

P R O C E E D I N G S

9:10 a.m.

PRESIDING MEMBER BOYD: I think we can get settled now and begin day two of our workshop on California Strategic Fuel Reserve and all the related options and alternatives. Being a Friday, and many of you have travel plans, we'll try to stick a little closer to the agenda today and really get done by 5:00, rather than drifting on so long, or maybe get done a tad earlier. We'll see.

On the other hand, it could really get interesting. It could go longer. But it's already interesting. It could get more interesting. At any event, our first item this morning is to be a presentation on some selected issues that Dr. Jeffrey Williams was asked to address. And with no further ado I will turn it over to Dr. Williams.

DR. WILLIAMS: Thank you. Sitting here yesterday I, again, appreciated the fact that often people talk past one another in large part because they're imagining some different situation, which is to say they have some implicit assumption about something, perhaps in the

analysis.

Implicit assumptions are quite common. We all make them. But in general, it's better to try to make them explicit. It helps the communication. We also can see whether certain features of our analysis hinge a lot on the particular assumption we make. Implicit assumptions are inevitable. Sometimes they can be very small. They sometimes they can be so huge that they affect the major conclusions of particular analysis.

And we want to make sure that's not happening, especially in this instance. So I have been looking for implicit assumptions in the general analysis of the Strategic Fuel Reserves, and thought of four areas where I think that implicit assumptions is dampening our ability to communicate, but also may have a significant effect on the conclusions we draw about the advisability of Strategic Fuel Reserve.

I'd like to go in order of these four and talk about them, almost a stand alone commentary all having to do with storage. And the first is California's status as an island, which we talked about a lot yesterday. And then one we

didn't talk about yesterday, and that would be my point, the influence of crude oil price relationships on the advisability of the Strategic Fuel Reserve.

And then what we did talk a bit about yesterday, the interaction between a Strategic Fuel Reserve and private inventories, and finally the measurement of the consumer gains from stabilization. We've heard that the Strategic Fuel Reserve should be in order of magnitude, great benefits than cost. And a lot flows from that particular conclusion.

And if that turned out to have a hidden assumption that makes that number very large, then we perhaps should rethink the other details of the Strategic Fuel Reserve. So I will cover these four in sequence, but I think you'll see that they interact in some ways too. Let's go first to the implication of California Status as an island.

And more, I really want to ask about, we've been hearing discussions of the trends in California production and so forth, something about the storage cost, the permitting process and so forth. Let's make sure we understand what those issues will imply about three areas, the

relative price volatility in California, relative to other places in the country, average inventories in California, and frequency of low inventories in California.

There were several assertions yesterday about what these changes mean. And I'd like us to be a little more systematic thinking through that, because I think we've jumped to some conclusions. I have in mind some idealized world so that we can think this through, and we're going to make one change at a time. The impulse everybody will have is to make a number of changes at once. That's a little dangerous for thinking through this clearly.

And if you want to call it California and the rest of the United States, so forth, or just island A and island B. And let's start off by saying this is fairly symmetric, the distribution of production shocks is the same on each island. And they can trade fairly quickly between one another. And there's perhaps island A, or California is shipping mostly to the other island. But it's intermittent.

And then let's go through some changes through this and see what it implies about these

three things. Let's also keep in mind something about the intrinsic storage cost for crude -- excuse me, for gasoline. At a lease rate of 50 cents per barrel per month, that's what, about 1.2 cents per gallon.

And so we have to judge things relative to that standard. Let's not forget that there's interest costs too. A month's interest has to be spent I think for the storage. To keep things in perspective, the permitting cost we heard yesterday were about a tenth of a cent, maybe .2 cents on that scale. A significant cost, but perhaps not as important as some other things.

I want us to discipline ourselves to think about what these costs will do. So let's first ask, suppose in one of these islands storage costs are a lot higher than in the other island. Well, California if you want, because of environmental rules of permitting is doubled. All right. Where will storage be done? It's going to be done where it's mostly cheaper.

It's not going to be done in an expensive place where the storage tanks cost a lot more. There could be some storage there, but the economic forces are very strong to put storage

where it's cheaper. We heard yesterday a statement by the gentleman on the teleconference that there's a lot of discretionary storage in the US Gulf Area, Atlantic Coast because it's cheaper.

Well, I'm not surprised at that. But if that's true, what should be the effects on the more expensive island, California here? The price volatility, given the same production shocks and risks, and all that, should be higher on the place that has the more expensive storage cost because trade can't be a perfect buffer. That's just a fact of life.

But also average inventories, on that island where it's more expensive, should be a lot lower. And probably, to be very low, quite frequently. So we had zero inventories. Why store where it's expensive? The price volatility is a result of those storage costs for sure. It doesn't necessarily indicate then that's there's something wrong with the low inventories.

That's just a sensible market response to the fact that having it more expensive to do something some place or another. Let's ask this one, which we've heard a lot about that California has moved from being an occasional exporter to an

occasional importer because of no new refineries, or whatever reason. I'll just accept that this is a fact. What does that mean for storage? What does that mean for price volatility?

Let's ask what should be the average price then if California is usually an exporter versus usually an importer? Let's say it's our 15 cents would be the cost from going from an exporter to an importer. Well, California has flipped. And so it should be sort of double that price difference, about 30 cents, right?

Well, that means every gallon of gasoline that's put into storage is 30 cents higher, and the interest on 30 cents per month, let's say it's about ten percent interest a year or something like that, the interest for one month would be one twelfth of ten percent. Shall I call it one percent to make the math easier? What's one percent interest on 30 cents? .3 cents, three times the cost of permitting.

That fact alone says there should be less storage in California. It's not that the import dependence causes the additional storage. It works the opposite way. Prices will be more volatile because of this. But average inventories

ought to be lower, and we should see more frequent periods of no inventories. That is the rational economic response to this fact.

Okay. How about another one we've heard about that the potential imports from California now have to come from a lot farther away. So from my idealized world of two islands that can trade quickly, now it's going to take a lot longer. I think we all can see that in that world, on both islands probably, prices are going to be a lot higher, especially this imported one.

And a rational response on both islands is to have average inventories higher because trade is a less effective buffering mechanism. We also probably will see lower inventories that is zero inventories or down to only operational inventories, if you want to think about it that way, less often. But I bet there will more long strings as the market takes time to recover from shocks because the trade can't buffer as much.

I say in passing, because this is important too, when we have now a lot longer time necessary for trade that the spot price in California, or this importing island, becomes less and less reliable as the indication of the

incentive for imports. It's a forward price out the time that it takes to get something there.

And so a feature of California's specifications is that you can't look at the spot price differentials anymore. You've got to look at something farther out, a necessary implication of this fact, which I'm not questioning at all. Here's another one that we've heard about, that the risk of refining disruptions has increased in California, frequent specifications changes and so forth.

We've got to be really careful here. What's happening to mean production? We're just increasing the variance of this production or has the mean production changed? I suggest we just think about risks happen greater, disruptions suggest some standard operating amount, and then you have a disruption. You're also changing the mean when you change that thought of a disruption.

I want us to just think about increased variability, but no change in mean. You would imagine in this idealized world I'm talking about, prices are going to be more volatile. If there's no disruptions at all it would be zero. So it has to be going with more variance. You would expect

a rational response to hold more inventories typically.

And, again, you'd probably see that low inventories occur less frequently. You don't get down to operational inventories as often, but when you do they tend to be in streaks. What if you put all these together, which is in fact what seems to be the reality in California. We get these following predictions from this analysis, which is that price volatility in California is unambiguously higher.

It's not necessarily a bad thing. It's just an unpleasant fact of life. But here we have the average inventories are ambiguous with these changes. There were several forces making for lower inventories on average, and other forces making for higher inventories on average. Similarly for the frequency of almost no inventories, that is just operational inventories, again, that could occur more or less.

So what have we concluded from this, that price volatility and inventory practices both reflect underlying circumstances about the change in trade cost or the change in storage cost. It's often sensible to have low inventories at a

particular location. And most important, I want to say, is the higher price volatility need not imply that average inventories be higher.

An economics 101 does not say higher average inventories with higher price volatility. That was an assertion yesterday. That is not necessarily true. And so I think that the proposal for the Strategic Fuel Reserve has implicitly assumed that if they can document higher price volatility, about which there is no ambiguity, that it should necessarily have induced more private inventory.

And that, I'm afraid, does not follow as a logical argument. Let me turn to my second area, which is the influence of crude prices. We've been talking about gasoline, but crude is, after all, the input into gasoline. And we would expect that crude oil inventory practices ought to have some interaction with inventory practices and gasoline just seems to follow.

And I'll go a little further, there should be some effect of the price relationships we commonly see in crude oil. That is it ought to matter whether crude oil is consistently in backwardation or consistently in contango, to use

those technical terms, to what is happening in gasoline. Let's think this through with the same kind of logic trying to quantify storage costs.

In general, the effective cost of an input for storage is less than that for an output. Perhaps the input is more difficult to store because of its physical quantities, but it has a significant advantage over storage of an output in that it doesn't have the additional processing margin, refining margin, whatever you call it.

The import margin, similar logic, has made the output more expensive. Interest on more expensive things is more expensive than on less expensive things. There's a strong economic force, not an overwhelming one, but a strong one, to store the cheaper form of something. And that means store crude and not gasoline. But I might say in passing about where we store the crude. We can store gasoline and very expensive above-ground tanks, right?

Nature has provided a very inexpensive way to store crude. It's called not pumping it yet. It's in the ground. It's free there in terms of storage costs. So the very fact of where we get crude suggests that that storage of that

input will be inexpensive. And so we would not expect very many inventories of gasoline made from crude.

Think in contrast of wheat and flour, nature does not store wheat very well. And it's more natural than to have storage of flour perhaps. You're probably saying but where do the disruptions come from? Is it in the production of crude or is it in the refining, or the shocks or demand? The relative importance of those shocks will determine whether the input or the output is stored, or the goods in process for that matter.

But there's still an economic force that is working towards storage of the input. And that's especially true because of the physical cost of storing crude. And now let me talk about the price relationships in crude. Crude oil prices are persistently in backwardation. Let me use this plot of NYMEX crude prices. This is two months ahead. Mine is one month ahead.

I had one on the screen yesterday for one moment in September of 2000, but these are for every day for this period in 1995. But if we went back 15 years before, it's a very similar diagram. All these points below the zero line is a

backwardation, and that's saying, this is an extreme example perhaps here in 1996, crude one month later is at a $3 lower price than crude one month before.

Most often crude is about $1 a month cheaper for one month later delivery. There's this one exception here where crude was more expensive later. But in general, crude is cheaper the longer you wait. Why is this happening? Because we have a gorilla in the room called OPEC that nobody is mentioning. OPEC, by restricting short run production, is consistently raising the price of crude for nearby delivering over later delivery.

I don't think anyone will argue that's what OPEC is trying to do. But now let's ask what does that mean for the storage of gasoline? Crude oil, say $30 a barrel, $1 a barrel a month cheaper if you wait a month. That means the raw material for gasoline is getting about, let's see, one on 33 percent cheaper in one month. That's a three percent storage cost. That would be equivalent to about 2.53 cents a gallon storage. It's getting cheaper.

That effect, is what, an order of

magnitude bigger than permitting costs and so forth. One reason we don't have storage of gasoline is that the backwardation accrued creates a very strong disincentive to store any of the outputs from crude. It also creates a disincentive to store crude above ground.

So I'm trying to say here that this backwardation in crude is the same magnitude, perhaps greater magnitude, than obvious storage costs of gasoline, which we've been talking a lot about. This effect is felt everywhere, not just in California, not just in gasoline.

And so I think there's an implicit assumption in the proposal for the Strategic Fuel Reserve that I might state this way, they have implicitly not mentioned crude oil. They've talked about how crude oil prices are volatile, yes. But they haven't said what is a price relationship for crude.

I am implicitly assuming that it's flat. If it were always in contango, that is an incentive to store more gasoline. But the fact is it's in backwardation. And so by assuming it's flat, they have concluded that she should be storing more gasoline than if this assumption were

made explicit and we took a pound of the effects of the crude.

Let me now talk about the interplay between the Strategic Fuel Reserve and private inventories, again, trying to find out if there's some implicit assumption that's driving the results a lot. Let me review what we've agreed are sensible, perhaps idealizing inventory practices. I would say that they are responsive to inter-temporal price signals.

So we should expect considerable storage during contangos, and minimal storage during backwardation. I would say that we should also expect inventories adjust relatively smoothly to those inter-temporal prices, but maybe that's a little bit more of an argument when things come in tank sizes and so forth.

But for a large area that ought to be somewhat true. And we would expect, and this is just what I've been arguing for the last two points, that we would store less on average if store costs are higher. We would expect there's some flexibility of change in conditions, and you'd sort of suspect facilities in access to pipelines.

I'm trying to define that as sensible. Now I'd like us to go through and ask, suppose there is some other player that decides to get into the storage business and does something. I'm not saying wishes of this is of Strategic Fuel Reserves.

I want us to think systematically what the presence of that other player does on these sensible players. So when I say this is sensible inventory, imagine a number of firms doing this, or a number of agencies doing this. Let's first consider when among these sensible inventory holders what would be the effective player who builds and fills many tanks in a distant location.

Let's use Chico as a shorthand here. Where nobody would want, really, to have these tanks or this storage. And announces that that's going to stay in store until the gasoline price reaches $4 a gallon retail, which has never been seen. What is the affect of this player? I would have said who this player is please? I've got some representative from WSPA imagining that I'm contrasting the sensible private traders with the big public trader, but it could be the other way around.

The sensible ones are the procurement departments of a lot of small cities around the San Francisco Bay Area. And the not very sensible inventory player here is the CEO of a large publicly traded company that, having milked his shareholders for a huge pay package, decides to put gasoline storage at his ranch in the foothills or something. I'm not making any judgment about who's doing this.

I'm trying to contrast sensible and nonsensicle storage. So there's somebody that's really storing in a nonsensicle way. What effect does it have it on the sensible people. I think they'd ignore him. That stuff is out there in Chico. It's going to stay there forever. It shouldn't affect anybody else's behavior at all.

So there's a minimal effect on tank lease rates elsewhere, minimal effect on average inventory, minimal effect on range of inventories elsewhere, I would say, because they ignore him because he's doing something so foolish. Let's think about in an immediate case where this player that plops into this otherwise sensible industry is reasonably sensible, but no perfectly sensible.

If you want to think about it, he builds

a number of tanks right here in Sacramento, which is probably not the best place to put a lot of extra tanks. He has plausible rules for procuring gasoline and releasing it, but it's a highly bureaucratic set of rules, moves very slowly. You can imagine any agency or you want, I think, could fit this, right.

And he considers flat price more than price relationships. That is he has a release rule about what the absent of price gasoline is, rather than the inter-temporal price relationships. This particular style of storage I would argue would substantially displace other inventories, especially those around the Sacramento region. The displacement would be quite different, however, depending on the conditions.

If nobody has very many inventories anyway, this player doesn't change it very much. If they have a lot of inventories, I bet it changes it a lot. So displacement has to be some concept of not some absolute average displacement, but displacement under different conditions. I would expect also that the lease rates for tanks over a wide area be displaced because there are a

lot of new tanks built that really weren't needed, but they could still be used.

Finally, let's consider that this player is quite sensible about inventories, fairly large though, enough to make a noticeable effect on who's storing, but the behavior is still sensible. Let's also imagine that this player has a small operating cost advantage for some reason. But he still follows sensible inventory practices and he's thinking about tankage in sensible places.

This party almost surely displaces all the others virtually one for one, because he's the same as they are. He just has a small cost advantage. He'll replace them, but the total storage will probably be very similar. So I don't see that there would be much effect on average inventories from this player, but who'd doing the storing will be quite different, right?

Because he's made sensible decisions about where tanks are and how many tanks to have, I doubt there's much effect on the lease rates for tanks. But who nominally owns the inventory will be very different. So what does this analysis tell us about the Strategic Fuel Reserve? I would argue that the more sensible are the tangent

amounts, the tangent placement and the operating rules of the Strategic Fuel Reserve.

And an argument has been made it would operate like a sensible bank instead of one of those monolithic government storage reserves. So we'll concede that point and say it's more sensible. If that's true, the more sensible it gets the more it will displace the private activity of holding inventories. It's a necessary result of the argument that it's being sensible.

I'd also argue, and I think this is probably the most important point here, if private parties are not now holding inventory, it's not sensible because of backwardation primarily I would argue, either the Strategic Fuel Reserves, if sensibly operated, will be empty almost all the time. And if frequently full, will not have been sensibly operated.

Let me expand a little bit on that, and it's a crucial thing to what I think is the implicit assumption. We've heard yesterday about rules that said the draw down could be only so much in a six-week period, and then it would come in the Strategic Fuel Reserve. If I'm capturing your basic concept correctly, right? Suppose

there's an extreme backwardation, 40 cents per gallon for those six weeks.

There's a huge outage now, but the thing will be repaired in six weeks. Imagine those conditions. And incredibly strong signal to have gasoline available now and then replace it later. If there's a rule that says the Strategic Fuel Reserve can only be half emptied, the rest of the gasoline staying there, I would say that's not very sensible.

The market signal says use it all now. How about if some of it used, maybe all of it used, and now it's to be refueled. Suppose, again, we see a backwardation after six weeks. What should happen to those gallons of gasoline that are coming back in the Strategic Fuel Reserve? They ought to be let out again because there's a market signal that says they need to be used now rather than the next six weeks.

And I'd argue that they never get in the Strategic Fuel Reserve because it sure isn't going to make any sense to pump them into those tanks and pump them right back out again. There's going to be some tendering process that says put them straight into the pipeline as they're coming in

from some other place. Out they go. And that's sensible. I'm not saying of course that the original quantity wasn't useful. It got used. And now it doesn't get replaced.

If gasoline prices typically are in backwardation, and that is a fact of particularly the summer in California, it says don't hold inventories. If the Strategic Fuel Reserve is operated sensibly, call the bank, it will be empty most of the time. It can't displacing private inventories when it's empty of course.

So I think that operating rule proposed, a sensible one, except for keeping something in it when there's a huge backwardation, is implicitly assuming that this six weeks after the release of the gasoline, that was a release triggered by a backwardation, that's why the private traders came in and paid a fee to get the gasoline out, that when it's refilled prices will be in a Contango and it justifies the storage.

We can argue with whether this applies. I'm trying to make clear that this is the implicit assumption behind this particular operating rule. I don't think it applies, but I want to make clear we all understand that if this is true then the

bank will operate as it's being described. Let me go to the fourth one now, my last one, which is the measurement of consumer gains from stabilization.

I've spent a lot of years now writing obscure papers on how to measure consumer gains from stabilization and so forth. This is one of my academic specialties, and I don't recommend it to anyone. But I can make some conclusions about this area. When you're analyzing these complex situations, some simplifications are unavoidable. So I'm not going to say we shouldn't have simplifications in the type of the analysis here.

I think analogies are natural so that a Strategic Fuel Reserve would be seen as comparable to something like completely stabilizing the market, or partially stabilizing it. Perfectly fine to do that. It's also possible to making bounding arguments to the gains are at least something, and I'll make an assumption that helps me say a maximum, or I'll make an assumption that helps me say a minimum. Perfectly natural to do that in this kind of an analysis.

But I want us to be very careful about thinking how the factual, what you are implicitly

assuming the world would look like otherwise, very dangerous. I also can say, based on doing a lot of numerical modeling in this area, that almost always the gains from stabilization are relatively small positive or negative.

This is one of these facts of life about this. And so if you get a really big number you have to wonder about whether there was an implied assumption that's driving it. Now, I think that's the case here. I want to talk about this a bit in the abstract so we get some principles down here. Gasoline is an emotional subject for everybody here, but I doubt corn is.

So let's imagine it's corn. And I want us to think about the situation where there's a good harvest of corn because of nice weather, or a bad harvest of corn because of bad weather. And that gives average harvest. And I've marked here what will be the price of corn if it's a bad harvest, $125 a metric ton, and if it's a good harvest $75 a metric ton. And I've made this so that we can do the percentages very easily.

If you don't like corn make it two talks by the same speaker, one went over and one went under. The average is something that we're

talking about a very general concept here.

PRESIDING MEMBER BOYD: I'm glad you made that differential because some of us are very sensitive to corn these days.

DR. WILLIAMS: Yes, yes.

PRESIDING MEMBER BOYD: The release of ethanol.

DR. WILLIAMS: The release of ethanol. And no one will say the corn market works exactly as this. What I want us to see though is how we measure gains from stabilization. And it's a thought experiment here of stabilizing something. All right. So there's two worlds we want to contrast. The one where you can have a good harvest or bad harvest, or a world where you just have an average harvest.

What is the gain from stabilizing things, right? Well, there are two comparisons to make, and you've got to make both of them. If it's a bad harvest relative to the average harvest, the consumer loses the regions here called A and B. That's the loss and consumer surplus from having to pay that higher price and getting a smaller quantity.

But there's sometimes when life works

out for the best, which is when there's a good harvest, and I've got it here that that's about a 50/50 chance. And so on those times when there's a good harvest the consumer has gained C plus D plus E. We've got to give some credit for those nice opportunities.

So the proper measurement of the gains from stabilization going to the average is to multiply the probability of the good times C plus D plus E, minus the probability of the bad time A plus B. Take the weighted average of their differences. And you can almost see from my diagram here that if you take the average of the differences of those two trapezoids, it's going to be a relatively small number compared to the size of either trapezoid.

Is everybody lost in my mathematics, in my mathematical terms? All right. And so the thought experiment I'm suggesting about stabilization is around an average harvest. But there are other questions we might ask with a simple diagram like this that are equally valid as long as they apply.

What is the gain from an irrigation project that ensures that there's never a bad

harvest. It's always a good one. That will be A plus B, plus C, plus D, plus E times a half because that's what's lost by having the bad harvest occasionally. All right.

And that's going to be a much bigger number than the gain from stabilizing at the average harvest. Clearly, there's a huge gains of consumers from moving average harvest to good harvest. Did everybody follow me there? Okay. So I want to emphasize that if we see an analysis of stabilization we ought to see sometimes when things work out well for the consumer, as well as times when it works out poorly.

We want to take the average of those. All right. So I look at Dr. Finizza's report where he's made -- this is a simplified version of his model. Hold on, I'm going to show something that we showed yesterday. And I look at this final table. You can read the assumptions he's made.

I'm quoting from his page 66. And he's done consumer surplus here, similar to what I was trying to calculate. And he says this is before disruption and after disruption, and the change. Why isn't there another row that says when things

are really good? There ought to be a countervailing row that talks when you have unusually good times.

If you accepted my principle that was ought to see these two calculations, we only see one, which makes me suspicious that there's an implicit assumption here. I say that he's implicitly assuming that the Strategic Fuel Reserve eliminates the disruption when it can do that.

And that he says that it's 200 days of the 365 days a year. We don't have the effective disruption. And he's doing 200, over 365 of my areas on that other diagram of A plus B, plus C, plus D, plus E. He has implicitly assumed that the Strategic Fuel Reserve acts as if it stops disruptions. He's implicitly assumed that stabilization of that corn market is equal to irrigation that stops the bad harvest.

If one does, and I've done it here, look at the average versus the disruption and no disruption cases, and then computed the gains and losses, the good times are credited against the bad times if we think about the gains from stabilization. I find that the weighted average,

using everything else of his analysis, is in fact zero point two million dollars per day per year, and it's minus.

So that there are no six hundred million dollars gains from stabilization here if it's stabilization. And so the crucial assumption is about what is the Strategic Fuel Reserve doing? And I've borrowed a diagram from his yesterday, and he says the Strategic Fuel Reserve and his model is able to truncate that price spike.

Fine. Let's say that it does that. Where did it have the good times though? There ought have been another color blue that's taken away from this, right? I don't see that. And if there's no blue compensating for the red, the red is going to look like a very big number.

I'm not saying the computation of the red is done incorrectly, or the model on that is wrong, not at all. But I'm saying that this implicit assumption is that the strategic fuel reserve is effectively eliminating the disruptions, and not just stabilizing around the mean production with the disruptions.

It seems like a small difference in the way we think about it, but it's the huge effect of

those calculations. Okay. We all can agree Californians would be better off if there were no disruptions. That's probably a very big number. But stabilizing around the mean production with the disruptions is unlikely to be much of a gain, a much smaller number.

The losses from the disruptions are in order of magnitude, lower the cost of the Strategic Fuel Reserves, but that's not the gains that we'll get from the Strategic Fuel Reserves because we haven't actually stopped the disruptions. If there were analysis of say some state rules that closed down refineries for two months after a small disruption, this would be a very good analysis of the cost of that state rule.

I don't think that's the problem. Those disruptions happen. And unless we're able to anticipate why the disruptions happen and catch them before they do, we're still going to suffer those losses of production. The Strategic Fuel Reserve can't change those facts.

So what I do I conclude from all of this? That the proposal for the Strategic Fuel Reserve rests on some implicit assumptions. Almost any analysis has to, and I'm not

criticizing them for that. But four of the implicit assumptions matter considerably to the proposal.

That, too, isn't necessarily bad, except that these four implicit assumptions are all under the direction of favoring the Strategic Fuel Reserve, especially the cost benefit analysis. And so thus, I would have to conclude that the case for the Strategic Fuel Reserve has not been demonstrated. I'm being careful with my language here.

I haven't said it's been disproved. It's just that with these big assumptions we know that they have big effect on the conclusion. I think we have to go back and to the sensitivity analysis with those assumptions changed differently. And it's possible there still will be an argument for the Strategic Fuel Reserve.

I haven't done that analysis, and so I don't want to say that the Strategic Fuel Reserve has been disproven. But I can say that these assumptions have an effect on the results that are so large that the Strategic Fuel Reserve has not been demonstrated.

I'd also like to step back from the

particular proposals and say that a lot of our discussion, perhaps original impetus for even investigation price hikes and so forth, is a confusion, again let's call it implicit assumption, that a lack of market incentives is equal to a market failure.

And that doesn't necessarily follow. If it doesn't make sense for a lot of people to build new tanks, that's not a failure of the market system. That just means it didn't make sense to build new tanks. It doesn't make sense to store necessarily. I'm not arguing that just because people don't do it, it proves that it's a good outcome.

I'm just asking that we be very careful that we don't equate lack of market incentive with market failure. And so I conclude my conclusion with this fundamental question, it is not obvious to me why a policy of storage, in face of backwardation, is an obvious suggestion for the State of California.

We hear repeatedly that the gasoline market in California is in backwardation. I think any proposal for a Strategic Fuel Reserve has to explain why the state should be storing in face of

that backwardation. It's possible to make some arguments in that direction, but I think those are the essential issues.

The backwardation seems to be a real phenomena, not an artificial one. It seems to coincide with price conditions elsewhere in the country. So why should anybody be holding large inventories of gasoline in California? It's unfortunate that all these forces make for price volatility.

But it does not follow that there is a logical policy that says store in the face of the market signal that says don't store. I'll conclude there. And how did I do for time? I did better than yesterday. And so both of my random outcomes are more than what you were expecting. So I've clearly gained you all a lot of consumer surplus.

PRESIDING MEMBER BOYD: Thank you, Dr. Williams. Well, it's been extremely interesting. And now it's now time for questions and discussion in your own points. And I invite questions from the table, from the audience, from anybody, everybody, including those listening in if anyone is. We got no questions yesterday. I

lost faith in the webcast, maybe there's somebody out there.

DR. WILLIAMS: I told my mother she could because she says she hasn't heard from me enough. So if there's a voice that says why haven't you call, that's my mother.

PRESIDING MEMBER GEESMAN: I think I'll respond. You suggested that there were some arguments that could be made on behalf of storage in the face of backwardation. Would you summarize a couple of those.

DR. WILLIAMS: Well, I might say that, well, suppose we see some fairly small backwardation, and the way we measure these backwardation was in a forward market that appeared to have a biased hour price because of the market imbalance, too many sellers versus buyers.

Then probably the real price differential is not a backwardation, and the state not worrying about those prices could logically be trades.

PRESIDING MEMBER GEESMAN: And by small backwardation, do you mean beyond the 30 days where we actually --

DR. WILLIAMS: No, I mean the end of six weeks. So let's say that we consistently saw two or three sent backwardation, it's possible that that really isn't there. That we see ten or 15 cents makes me think that it's really there. But there's an example where an argument might be made.

If there's a substantial cost to operating inventories and in some instance that the state wouldn't bear, its storage costs are in fact quite different, the effective price break to the state would be different and it should store it.

PRESIDING MEMBER GEESMAN: Okay.

MR. HAGGQUIST: Gregg Haggquist, Stillwater. Dr. Williams, once again, we introduce the profit. The teacher, if he is truly wise, bid you not into the house of his wisdom, but rather lead you to the threshold of your own mind. And I think that's what you've done here. It's good that you've caused --

DR. WILLIAMS: Can you put that a course evaluation.

MR. HAGGQUIST: And you're causing the people to think, and this is what we wanted from

day one to cause all of us to think and to explore and debate these issues. The question, emptying of the reserve and the replacement, the emptying and the replacement, it does with this kind of backwardation in other markets internationally.

Backwardation is not equal everything. A potential supplier into California who would love to bring some supply here and help this market out, if he could get in, maybe be facing steeper backwardation than we are, you know. We may have a ten cent backwardation. The refiner in the Caribbean may be looking at a 20 cent backwardation.

DR. WILLIAMS: But his prices are a lot lower.

MR. HAGGQUIST: His prices are a lot lower. And the refinery in Australia might just want to get rid of some supply. The supplier in East Coast Canada would have a different set of assumptions. For that reason, you know, when we started looking at this, that's why I looked at this in terms of equilibrium internationally. It's not a zero sum gain.

And it is not just supply demand in the unseen hand of the market. It's a system of

cooperative games, and each market that wants to come here with supply, wants to bring supply here. Now, crude oil has certainly been taken into account throughout the study. There's chart after chart. The backwardation of crude certainly is agreed.

DR. WILLIAMS: The analysis doesn't account for the backwardation accrued, however. It counts for price volatility accrued, and those are related issues. But let's finish the in and out every six weeks issues.

MR. HAGGQUIST: Yeah. Well, I certainly do agree that it makes sense that you would, if you were going to store anything, you would store the cheaper raw material rather than the finished product, yes. That would be true. But of course we've already demonstrated that there's a refinery manufacturing shortage here.

So even if you had infinite supply of crude oil, you still can't turn it into gasoline at a moment's notice either. Anyway, the storage of gasoline in this dynamic reserve links California to the other supply centers in the world by means of the emptying and the replacement. Just like New York Harbor is linked

to Rotterdam and South America, and other supply centers.

DR. WILLIAMS: I'm not arguing at all that there aren't linkages. And, in fact, the more that California becomes an importer the more regular we should see those linkages. The issue is what happens to the gasoline once it's gotten here. And if the price relationships, this is six weeks after it was sent, now what happens if the price relationships are then a contango, it's sensible to put that gasoline, or equivalent, into store.

Surely, when it arrives the price relationship is still a backwardation. It says use it then. Don't put it into store. The sensible thing is to be happy that it's come in. All right. It's clear that everybody is better off that that import arrived. Let's not confuse that the import was a good idea with what you do with it once it's gotten there.

And it won't be, in this circumstances, be sensible to refill the Strategic Fuel Reserve. It says put it out on the pipeline system. It's worth ten cents more a gallon used immediately than it will be in six weeks. Fine. And so the

Strategic Fuel Reserve was useful in first starting this cycle that brought in the imports and so forth.

But is isn't full again until the pricing conditions have changed such that it makes sense to put it into storage.

MR. HAGGQUIST: Dr. Williams, doesn't that call into question how the EFP, the exchange for physicals, and the forward market, future market, and New York Harbor and Rotterdam work? The first time the empty, the tanks, they'd fill up again and sometimes they don't, you know, the contango and the backwardation is a very healthy signal system as you correctly pointed out.

And the market will tell us when there's a contango, you store, and there are times you don't store, but you release immediately. So you could see a ship coming into the SFR just like you do in New York Harbor and going right back out again, just passing to the tank is just a conduit. It's a pipeline. That could certainly happen.

DR. WILLIAMS: Sure.

MR. HAGGQUIST: It's a dynamic process like cargos into any liquid market, Singapore, Tokyo.

DR. WILLIAMS. I agree. It happens that their Contango is more often in New York Harbor than there are in California. And so there's a market signal to store much less often in California than in New York Harbor. Let's put the issue this way, if there was Strategic Fuel Reserve in New York Harbor it would be refilled more often because of the price relationships there.

But I go on to say, because of that very fact, because it is then likely to displace the private industry inventories, because they, too, would have been refilling tanks more often in New York Harbor. So the argument about the Strategic Fuel Reserve and displacement of private inventories cuts several ways here.

That the more that the Strategic Fuel Reserve acts as sensible private inventories, inevitably the more it will displace them. And so a bank transported to New York Harbor, I think, will have much more displacement precisely because more often than not in New York Harbor it's sensible to store gasoline.

MR. HAGGQUIST: Well, I wonder if, once again, the words that we're using, the Strategic

Fuel Reserve of gas why in the written things I never used that word because it elicits the wrong kind of responses. You can call it the dynamic reserve or you can call it NYMEX.

DR. WILLIAMS: I'm using both of these in the sense of a dynamic preserve.

MR. HAGGQUIST: So once it's in action it's no longer sitting there. It's a pipeline, a moving pipeline. If a car doesn't come in, they're going out. It's constant. So it's like line field.

MR. WILLIAMS: We can take pictures of it and ask how much gasoline is in it at certain points of time, right?

MR. HAGGQUIST: As you could in any tank in New York Harbor the services the NYMEX.

DR. WILLIAMS: Perhaps, as I say, always it's implicit assumptions that make the conversation difficult. I'll try to make mine explicit. I'm explicitly imagining now that when a barge arrives in say San Francisco it is pumped directly into the pipeline system, and doesn't sit in the Strategic Fuel Reserve tanks, which are off to the side.

And the reason of that is there's a

backwardation that says make it used immediately. There could have been an auction even for those supplies coming in. The fact is they're not held in the tanks.

PRESIDING MEMBER BOYD: Gentleman I need --

MR. HAGGQUIST: It's a continuous process. That's a long time.

PRESIDING MEMBER BOYD: I need some help here while both are you standing there. And I understand, you know, that the market backwardation or Contango would dictate the academic logic of whether or not this barge or tanker load of fuel would go into the market, into the reserve.

But don't I understand that one of the conditions bank is that if somebody took something out their obliged, no matter what the conditions or the market are, to put it back? So if it comes, you know, if that is the load that is to refill the reserve because somebody a withdrawal, it's going to go there even though it academically would be better market wise because of backwardation to get it flowing?

DR. WILLIAMS: Here's where I think

where the confusion is, somebody is obligated to bring it back. This is the barge that has arrived from outside California is we're paying that Strategic Fuel Reserve drawn out six weeks previously.

Now what happens to it? Presumably there's an auction that day, and if it's in backwardation a lot of people come forward and say we want that gasoline that just happens to have arrived. And it immediately goes out into the system again. It never will have been held in the Strategic Fuel Reserve. Somebody has to bring it again in six weeks for sure. But what happens to it after that?

MR. HAGGQUIST: Well, that's the constant flow. I think I've held the mike long enough and other people might want it. That's a constant flow. That happens all the time in every liquid market. And you could say that this is a kick start of a more liquid market in California.

Maybe someone else would like to take the mike. But thank you very much. You know, it's very insightful ways to look at this problem. Thank you very much.

MR. GIESKES: Thomas Gieskes with

Stillwater. And I also really appreciated your very lucid exposure of the reasons, all the various reasons, why indeed (indiscernible) are not kept in California, the liquidation of the markets, the high storage costs, all the commercial reasons that prevent storage being built and inventories being kept.

And I thought it was a very, very good summary of some of the same things that we tried to put forth in our report. You very rightfully asked the question why should anybody, any sensible inventory, keep stocks in the face of liquidation. The whole principle of the stocks is that the state would not have the same profit argument that a sensible keeper of stocks would have.

So in providing these barrels, the initial fill for free, as it were, it provides an essential role yesterday. You very rightfully pointed out that the inventory is needed right there and then, and that a trader would jump at the occasion of being able to pull inventory in a liquidated market to pull the inventory out right then in the face of a price hike.

And what happens next had nothing to do

with the market meeting and Contango for a refill. What happens next, as Commissioner Boyd pointed out, it's the deal gets done on the front base and then there is a refill as a matter of obligation. That cargo coming in doesn't have a price.

DR. WILLIAMS: It's a return. It's not a refill. I think that this is the thing to be careful about here. It's not going to sit there again.

MR. GIESKES: But it comes back to the question of indeed why would anybody keep inventories in the face of liquidation. Private industry is not going to do that, rightfully so. I mean there's no argument. And whey would they indeed try to play into that price early if they had inventory.

So the premise is that by providing a pipeline from where people where could withdraw on the basis, it will diminish the price. So I have a couple of questions for you. Would you agree that having inventories on hand in the face of backwardation would help to get a price back?

DR. WILLIAMS: How about if we can say this, imagine a world where there's no inventories and there's a big shock, and prices are going to

go up very high for a spot delivery, and also fairly high for six week and on it goes. Suppose that there is a lot of inventories on hand. I think what we will see is that the price back isn't as high and this decline is less.

That's a feature of holding inventories. And that sensible inventory practice will lead to occasion like that. But that doesn't mean that the Strategic Fuel Reserves will do that any more than sensible private inventories will do that. That's a feature of sensible inventory.

MR. GIESKES: I fully agree. But we just, but we just agreed that private industry, according to you, will not keep inventories in the fact of backwardation.

DR. WILLIAMS: And why not? Because the market incentive says rarely do that.

MR. GIESKES: Yeah. And so we're in full agreement then. And the next question I have is that I heard you say that the volatility is an unfortunate fact of life. It comes from all those factors, the island, the lack of supplies, the long import change, the lack of inventories, etcetera. And that, unfortunately, that's just a fact of life.

I think the way (indiscernible) was written is to look at these and then say what can be done about. He actually went one step beyond just explaining what drives this volatility and just lots of natural analogies. It's to go one step beyond that and to think what can be done about volatile.

And even if the effect of the SFR, as you said, if indeed the market was as symmetric as a (indiscernible) corn harvest, which I don't think is the case, the (indiscernible). But even if were the case, and even if the only effects of the SFR were to neutralize the volatility, I think we would see a lot happier California gasoline consumers, and a lot few questions for the Governor to answer, and that sort of thin.

So from the perspective of is volatility good or bad, I think the extreme volatility that we see in California is not desirable.

DR. WILLIAMS: I have to point out the calculations I did by Dr. Finizza's methodology that if you just try to average out the peaks of the troughs, and in this they're going to be some big peaks not too often, and some troughs, I did that calculation. And it says that consumers are

hurt in California. That may seem counter intuitive to everybody, but that comes from some other assumptions in the analysis that I haven't talked about.

If we take his analysis as is given and try to look at whether the gains from stabilization, that analysis implies consumers are hurt.

MR. GIESKES: And, well, Tony will deal with that himself. But I just had a question, would you consider a stable even market even at the neutral or starting negative consumer benefits a better situation for the California market?

DR. WILLIAMS: Not particularly. But stability in and of itself is obviously of more advantage than not. But I have to look at it against some cost of that stabilization. If the order of magnitude calculation that you propose, benefits over cost, yes, more stabilization might be better.

But if there's a small positive benefit and a large cost, I would say, no, that would never be sensible. All right. So, again, it's a measure of cost versus benefits.

MR. GIESKES: The third question that I

had for you is really how do you see the filling of the trough based on the mechanism that we proposed for the SFR? Really, it is an import company. How would you see it's not only, say, the cutting of the (indiscernible), and the mechanism we propose would help to fill the trough.

DR. WILLIAMS: That's a good question, and it's another example where we can talk about implicit assumptions. You're implicitly assuming that those imports would not have come in unless there was this obligation to refill the Strategic Fuel Reserve. I would say that market conditions, when they're price hikes, as we saw yesterday in that period in 2000, September 2000, that the nearby forward market in California provided a very strong incentive to bring in cargos from abroad.

So any that are coming to replace the Strategic Fuel Reserve are a direct displacement of those that would have come in for other reasons done by private parties. And so when we talk about displacement of the Strategic Fuel Reserve, it's not just of inventories, but it's imports. And I bet that the displacement of imports is one

for one.

MR. GIESKES: How could it be? Could you elaborate a little bit on that?

DR. WILLIAMS: The signal for the imports is a six-week forward price say, because that's the time we're imagining. And if that's higher than the price say in Singapore, someone will bring it in, right? That's the same --

MR. GIESKES: That's not the case, because we're talking about --

DR. WILLIAMS: That's not the case. Well, it is factually the case in 2000 there, that there was and there were imports.

MR. GIESKES: Yeah.

DR. WILLIAMS: And so if you have a Strategic Fuel Reserve think how much greater, imagine this, I can buy this gasoline in this tank here in California now. I have to replace it. Where am I going to replace it from? Singapore. When is that sensible? When I cover my costs for doing that. And how much will I pay for the gasoline today?

My fee will be equal to the backwardation of the spot, the prop over the three months. I replace it at a sensible cost. I would

have done that shipment anyway.

MR. GIESKES: Yeah, but that's not what we're talking about. What you're talking about is arbitrage that's opened right now because California has a price hike. That is open. Now it's not opened against backwardation in six weeks.

DR. WILLIAMS: No, I will say for not the last time, where is it --

MR. GIESKES: The problem is that traders look --

DR. WILLIAMS: When you have longer to go the relevance arbitrage is not the California spot price. It is in California how long it takes to get their price. And so there aren't arbitrage's.

MR. GIESKES: Yeah, but that's exactly the point. That is a very small percentage of the total import potential that's out there. There's a much larger import potential against the pump market. The pump market is this much higher, and backwardation against the backwardation there's a much smaller percentage of the international market.

DR. WILLIAMS: Then I think we can agree

to disagree here. My implicit assumption, explicit I'll make it now, is that gasoline takes six weeks or a month to get to California. And yours is if it only could get there right now it would be of great value. I'll agree with you. But I'll point out physically it can't there right now. And so this is not a relevant comparison.

MR. GIESKES: I'm afraid that's the point that you're missing is that that's the whole premise of the SFR. The barrel cannot get there physically in six weeks, but if you could do a prompt deal now, lift it now, do a time 12, then you can make a current transaction today. And all you have to do is bring back that volume. And you know that you're locked in at a much higher today than you could physically in six-week shipments.

DR. WILLIAMS: You've had to pay the fee. So what fee will you pay is exactly for the backwardation.

MR. GIESKES: Not necessarily. You think there will be a bidding process, then it will be lower than what is currently the case.

DR. WILLIAMS: Also, so there's an implicit assumption that the managers are going to give away this prime gasoline at less than the

value, which is measured by the backwardation.

MR. GIESKES: Exactly.

DR. WILLIAMS: Okay. I go back to a slide that says when non-sensible players get in the market they will have an effect on sensible ones. I thought you were arguing that the Strategic Fuel Reserve would be made sensibly. In which case the fee ought to be the backwardation.

MR. GIESKES: No, the difference is really the release issue and the volume promptly that the price is not going up that high. So what is happening, if you bring an additional 100,000 barrels in the market is that just over your bid on the backwardation.

DR. WILLIAMS: Unquestionably. And whether it was a Strategic Fuel Reserve or in prime inventory, if those inventories were there, and then the disruption action, this price won't be as high. From that fact, it does not follow that the Strategic Fuel Reserve is mitigating those price volatility, because you still want to run the inventory sensibly.

How did it get there? Well, because there was a Contango. And if it just got there because it was there, that's not very sensible.

MR. GIESKES: No, and that's why it's the role of the state because no private party would indeed put that freely as a disposition. The initial field based indeed on non-sensible in a commercial market, a non-sensible decision.

DR. WILLIAMS: Okay.

MR. GIESKES: And that's why no private party would do that.

DR. WILLIAMS: That's very worthwhile making that there's no sensible reason to have done the initial fill.

MR. GIESKES: Yeah.

DR. WILLIAMS: And that's what we're going to argue about afterwards. I think right there that makes this question. I'll go on to say you might reasonably say if the State of California can hoodwink the federal government into giving it that amount of gasoline for free by some swap with the Strategic Fuel Reserve, I'm all in favor of us doing that.

And then we'll use it up right away. We've got that money. And since probably the Strategic Petroleum Reserve is the prime example of non-sensible storage the whole country is better off, even though California got most of

that money. But the issue then will be why would you ever fill -- let's go back to the original fill of the Strategic Fuel Reserve.

There's a persistent backwardation. Why is the Strategic Fuel Reserve being filled? It's always cheaper to wait.

MR. GIESKES: Yeah. That's why no private person.

DR. WILLIAMS: No private person, but is it sensible for anyone?

MR. GIESKES: And if no private inventors are on hand you get this price volatility. So the only reason why you would do that, and this is the premise of the explicit assumption of the SFR, is if the state makes available these events where you mitigate price hikes, it will impact the (indiscernible).

DR. WILLIAMS: Agreed. But now let's look at what's sensible for the state to do, fill it now or wait a little while. It's going to the backwardation, always getting cheaper to wait a little while. So isn't it sensible for the state to wait. Well, that's like never filling it. Okay.

And in these are the crucial issues

about how an inventory management policy can operate. And I might say by way of comparison, the Strategic Petroleum Reserve, if we can characterize that, was a police by the United States Government of fly high and hold forever.

And if anybody can explain why that's particularly (indiscernible) perhaps then we can deduce why it's sensible for the State of California to buy at a premium to put into the Strategic Fuel Reserves.

MR. FINIZZA: Tony Finizza.

PRESIDING MEMBER BOYD: I'm going to try to limit this to the State of California.

DR. WILLIAMS: Yeah.

PRESIDING MEMBER BOYD: Not the United States. No one can predict what they're going to do half the time.

MR. FINIZZA : Tony Finizza. I'd like to comment on the comments on consumer surplus, etcetera. Can I turn you back to a page that's not numbered, but I imagine it's around five or six. It's called Finizza page 66.

DR. WILLIAMS: Yes.

MR. FINIZZA: I don't know if I can my name on top of a page. But it's a table that

actually came out of the report. And the internet is wonderful, you can go and grab things from it. I have to make a point about this. This was in part of a paper where I was trying to express the potential one might have. Of course you can never reach that potential.

In fact, if you would multiply the consumer's surplus here by 200 you get 1.6 billion dollars, 1,600, which is not possible, which I would have to agree with you. In fact, I did not use that analysis in the calculations I made. And I did a variation of what you said.

I kind of wish you had picked chart -- I don't know what page it would be in my report, but I know it's yesterday, which of course you could get at. I actually calculate the consumer surplus to be --

DR. WILLIAMS: You had this one up yesterday, right?

MR. FINIZZA: Yes, yes. Let me get to that. Could you go back. That's okay. We don't need that. I calculate the consumer surplus to range from 160 to 400 million, which is ten percent to 25 percent of the number that the other one implied, because I did what you suggested.

Now, you might still have a complaint there because I did not assume a symmetry in price ups and price downs, which is implied by that chart that precedes the other one you showed there.

Also, you warned not to worry about -- not to be suspicious when gains of stabilization are large. And I think the right way to think about that is relative to the size of the market. And the gains that I implied by my analysis here, 160 to 400 million in consumer surplus is somewhat between .5 percent to two percent of the market, which I would not really consider to be too large in a relative sense.

It certainly is large in dollars. If we made it in yen we might even get a higher number, or italian leer, which no longer exist. But as a percentage I didn't see it as giving me cause for suspicion since we have a 22 billion to 30 billion dollar market.

And I think the thing you still might be able to quibble with honestly is that I did not assume symmetry in terms of, you know, prices going up and prices going down. But the spikes are more likely to be higher from a base than the --

DR. WILLIAMS: I'm not saying it's a 50/50 chance. And so if that's what you mean by symmetry, I'm not saying that that's relevant to this.

MR. FINIZZA: No, I was examining the supply and demand chart you had. I was thinking of that one where you showed --

DR. WILLIAMS: At times it doesn't go down. And so if there are good times or good harvest, the price doesn't go down.

MR. FINIZZA: I was measuring from what I would say is the normal market where they're on a refinery disruptions, which we --

DR. WILLIAMS: And I agree that you're doing that, and that's saying that the Strategic Fuel Reserve stabilizes at the known disruption. And that's equivalent to assuming that the Strategic Fuel Reserve gets back that production. And I don't think that's what you want to assume.

MR. FINIZZA: But I don't think it would be fair to say that I chose a number of 1,600 million as the economic benefit, which that first chart implied. It's one tenth of that to one quarter then. Thank you.

DR. WILLIAMS: I would like to say two

more things on this because it is a very crucial area. Rarely does economic theory tell us anything definitively.

MR. FINIZZA: Yes.

DR. WILLIAMS: This is an unfortunate fact of life.

MR. FINIZZA: You're not supposed to admit that, you know.

DR. WILLIAMS: Yeah, I know I'm not supposed to admit that, but there's one place, it's more the mathematics, not from the economic theory. If one assumes a linear demand curve, not the spasticity of that, not the slope, but the shape of that demand curve, which is what you've assumed, by property of the mathematics, the stabilization of that demand curve has to lead to negative gain to consumers.

This seems counter to the people, but this is a whole series of published papers back to the 1940s. This is a fact, not a thing. You assume a linear demand curve, and that's what made me suspicious that there had to be some other implicit assumption. I'll quickly say, I don't think the demand curve in California is linear. I bet it gets more non-linear.

And so if it were redone you might up with a positive consumer gain. So that you come up with a positive consumer gains means to me there's some other hidden assumption that we need to get at. All right. And I'd also like to -- and maybe this will be the whole place to end with a thought experiment.

You say that three percent is of total budget on the gasoline doesn't seem that great. But let's try to do a little introspection here. On average we might in a six-week period as consumers we spend, what, $150 on gasoline. Let's say in another six months it's $200. We have a variability like that.

And so our total bill for the year, what, about $1,400 or something, something like that, right? So think as introspection here how much would you pay if those expenditures were stabilized from $150 to $200, to $175 a month. Now, I personally, fortunately, have more than a couple hundred dollars in my bank account.

I will pay nothing to stabilize it at $175, because I'm going to pay the same thing on average for the year. Suppose I was a graduate student who's borrowing money on a credit card,

and so forth like that, maybe that's the majority of people in California, paying money on their credit cards, I sometimes have to borrow $25 in order to wait for the other $25 to come in, right.

On interest rates on my credit card about three times a year I'm going to have to borrow $25. I'm going to pay a couple percent interest on that. That's going to work out to the whole year maybe a charge of $2.50 say, something like that. So the most any one person would pay, because they're trying to smooth out their income like this for this amount of variability, is about $2.50.

If you multiply that by all the people driving in California, about 20 million, you get a number in the order of magnitude of 50 million dollars, not 500 million dollars. I want to say that back of the envelope calculation is sort of the essence of what consumers would pay. And unless you're -- and you're saying it's ten times more than that.

And that just doesn't fit with how I think people would react to stabilizing at 175 versus 200 or 150. And that's why I think there's some implicit assumption in the analysis that's

changing the average price to, and I'd pay a lot for that, and so would everybody else. If we could get it at 175, $5 each, we're going to pay a lot of money for that.

And so there's a treble here about what is counter factual. And I'm not really arguing with the methodology here, but with what is explicit counter factual. And I think we have to be careful to say is a Strategic Fuel Reserve equivalent of no disruptions, or is equivalent of stabilization.

I'm not trying to argue that it's one or other. I'm trying to make it clear how we have to think about that. So maybe we can end on that point.

PRESIDING MEMBER BOYD: We've got a hit? We've got a webcast question.

MR. STAMETS: The question is from Al Jessel, senior fuel policy advisor, fuel regulation admission technology, Chevron. And the question to -- so Commissioner Boyd does lose total faith in webcast. Can you comment on the -- and this to Mr. Williams. Can you comment on the validity of analyzing retail price impact of a mechanism such as the SFR, which would primarily

impact the wholesale market?

DR. WILLIAMS: I'm being asked how are wholesale prices transmitted to retail prices?

MR. STAMETS: I'll read it again.

DR. WILLIAMS: I think I would prefer to express no opinion on that subject.

MR. STAMETS: Okay. Do you want me to repeat it?

DR. WILLIAMS: No, I heard the question.

MR. STAMETS: I don't know that that's really within our scope today.

PRESIDING MEMBER BOYD: Nice try Al.

MR. MATTHEWS: I'd like to make an observation. My economics degree is some 30 plus years old, so you're running some old tapes for me.

PRESIDING MEMBER BOYD: Is it subject to backwardation?

MR. MATTHEWS: It's backward anyway for sure. And so I was struck by this whole discussion that the volatility problem we're trying to deal with is not the result of a market failure, unlike looking at some of the things we do in energy efficiency at least positive market failure, but actually is a political problem,

right?

And so the question is, you know, how would we spend 25 million dollars if we had 25 million dollars, which we don't? The degree is still fresh enough I can still make assumptions. So assume we have 25 million dollars to spend, and do we do something like this, or do we spend the same 25 million dollars getting people to inflate their tires, change their oil, and change their air filters, which gets us about one to three percent of reduction in demand?

DR. WILLIAMS: It's certainly the case that there's a political impact to the price volatility. Now, I fully don't understand that, but I guess I think prices ought to be volatile. And it's sort of fun to watch that. That's the only one that's interesting.

PRESIDING MEMBER BOYD: We're outnumbered about 34 point seven million to 100 here.

DR. WILLIAMS: But, you know, there has to be somebody that finds everything interesting. But I think part of it, it almost surely has to be that if we want to dampen price volatility it can be inventoried. But I get the impression that 25

million dollars ought to probably be spent on import facilities as a good way of damping things.

And maybe this is surely heresy, but did anybody do a cost benefit analysis of the Air Resources Board cost benefit analysis about whether it did price volatility? And so some of these specs may be our fundamental problems.

If there is a political impact of the price volatility, it's really due to the California specific specks it seems to me. Maybe that's the place to revisit.

PRESIDING MEMBER BOYD: Well, I would invite you to look at all of the public cost benefit analysis.

DR. WILLIAMS: I bet they haven't shown the price volatility. I've had the misfortune, I guess I should say the honor of being a public commissioner on the IMRC inspection maintenance and review committee. That is the agency, the group, that oversees the smog check program. And, oh, dear.

PRESIDING MEMBER BOYD: My sympathy is --

DR. WILLIAMS: I'll take it. And so one part that I've learned from that is that there is

parts of this state government I'm particularly looking together to do a cost benefit analysis of the whole set of rules, which is certainly something we were hearing about the permit process yesterday. My instinct, I say it's only and instinct here, it's really not a result of an analysis, is that we're better off looking at getting rid of those impediments.

I think a really good way to understand price volatility is that impediments cause it, the length of time of the imports, constraints on the pipeline system or whatever. If you don't have impediments you don't have price volatility. So flip it around that way and look for the main impediment.

And I'm willing to believe here that a major impediment is the ease in which imports can be brought in.

MR. MATTHEWS: So is it just one step further I suppose, thinking how we've done other things in other markets, is it rational to provide incentives for people to build storage or people to expand import, for the state to subsidize those kinds of activities as opposed to buying gasoline and storing it, those kinds of things?

DR. WILLIAMS: I'm relying more on my instinct as an economist and a specialist in commodity markets here. And so as long as you understand that I'm going off an area that I don't know as much about, my instinct would be that private decision regarding tanks are probably sensible and don't need much public intervention.

Or I could easily believe that big investments in port facilities and so forth being run by public agencies, that maybe those aren't the most sensible. And those involved with port facilities are probably ones where the state intervention would have the most logic.

PRESIDING MEMBER BOYD: Okay. Any other comments, questions? I'm going to declare a roughly ten minute break here so we can ready for our next presentation. And we're going to hear the following three individuals in this order, Robert Hermes of Pervin & Gertz, Tony Hoff of ST Services, and then Phil Verleger of Phil Verleger Productions I think. Anyway, how about a ten minute break.

(Thereupon, a short recess was held off the record.)

PRESIDING MEMBER BOYD: Okay. Thank

you, everyone. We can resume now. We're prepared to hear presentations from the representative of Pervin Gertz, Mr. Robert Hermes.

MR. HERMES: Thank you, Commissioner Boyd.

PRESIDING MEMBER BOYD: If I'm saying your name right, I hope.

MR. HERMES: You did. You pronounced it correctly. We're going to get a brief rest from economic theory now for 20 minutes or so. Just a word, Pervin and Gertz is a consulting firm that specializes in the downstream part of the petroleum industry planning and analysis type work based out of our home office in Houston, and chairman of the company.

We also have an office in Long Beach, and then international offices in Calvary, Singapore, London and Buenos Aires. We are appearing here on behalf of WSPA. That is I am hoping that WSPA is going to pay our bill for this. But I want to point out that the comments and statements that I'm making are my own comments and statements, and are not necessarily the official position of WSPA or any of its members.

What I'm going to cover this morning is

addressing several questions from a fairly broad base point of view. First is our California industry inventory practices, a typical of the industry as a whole. I want to make a few comments about the market spikes that generated the studies that we're talking about at this session.

And has the industry profited unjustly from these spikes, what we kind of look at there is the upside and downside. What is the best long-term program for preventing spikes. And will SFR work as postulated. We started out on this review in this initial report there was a chart in it that showed gasoline inventories in the rest of the US being approximately 40 days, and those in California being about seven days.

That seemed to me to be fundamentally wrong based on my experience. So I took a look at inventories and prepared this chart, which was submitted previously in some material. Since then we've had multiple iterations on this seemingly simple subject. And as of yesterday, I think, the chart presented, which I believe is only finished gasoline inventories.

And that showed California being I think

a day or two less in the US. I haven't gone through and tried to do this for every week and every month for a number of years. I did look at this, which is to the year end 2001. The year end is a fairly stable time to look at the numbers. I also spot checked it for 2000 and 2002 and found more or less the same thing.

I don't know if pointers work very well since we have multiple screens here. But these just give the numbers in barrels and how they're broken out by the DOEEIA, and incidently these are pad five numbers. Of course California is the major portion of that. And then the products applied being the annual demand for gasoline during that year.

And then this converts it down to days of supply. I've included MTBE and fuel ethanol, as well as gasoline blending components, rather than just finish gasoline, since these components are there to make gasoline and are a day or two away from being gasoline. The numbers I came up with was at pad five inventories for this particular time were about 21 days and about 20 days in the rest of the US.

And I excluded pipeline inventories,

which I think we all agree are dead inventory. And also to adjust for the fact that we have more long distance pipelines east of the Rockies, and therefore more inventory held that way. So I guess in general, my inclusion is that there's really not any material difference in stocking practices by the industry here as elsewhere.

I think as far as there was some discussion yesterday about discretionary stocks and how refiners treat them. Of course inventories are not just inventories held by refiners, although that's quite a bit of it. Other people, particularly I think in parts of the US, traders and speculators, and financial institutions, and other people own inventories.

But I think the general observations on refiners for the reasons that have been discussed for economic theory generally try to maintain what we call minimal efficient operating inventories. And there's times, I suppose when crude price is at 98, got down to $12 a barrel that there may have been discretionary inventories accumulated by refiners for a price speculation, if you like.

And maybe when prices get extremely high there's some trimming of the inventories. But I

think over a general range, most, but not necessarily all, are finding companies are generally big price speculators as far as building and holding inventories concern. However, they do hold discretionary inventories to supply their customers immediately with a perceived reasonable potential disruption.

So there is a cushion and flexibility there, and flexibility is always a very important part of anything to do with refinery economics. I can't tell you what those are. I think the number thrown out yesterday was 500,000 barrels in California, which if I divide that by the number of refineries in California it would mean each refinery would only have about 40,000 barrels of discretionary stocks.

That seems extremely low to me, perhaps even in order of magnitude. For the next subject I would like to talk about is the price spikes. And I know you've seen these charts 100 times. I'm not going to belabor them too much. I just wanted to make a couple of comments on them.

PRESIDING MEMBER BOYD: Let me interrupt and say those of you that hear the siren this tells us it's 11:00 and the last Friday of the

month. And they've been testing air raid sirens. So don't let it worry you. It's not the building on fire.

MR. HERMES: Okay. Thank you. And what I would like to talk about is the spikes in 1999 I think were largely attributable to one event that I would like to put into some perspective. And then as I think was discussed at some of the presentations yesterday that the 2000 and 2001 that the spiking is so that the market in California was not that different than in other world markets.

The Avon refinery in my experience in talking to others in the company that's been around a long time I think is unprecedented outage. It was a 160,000 barrel refinery out of service for five months. And the reason it was out of service that long was not due just to the accident that happened. There was a safety audit that occurred on it.

It was supervised by the local authorities and the company decided to shut down the refinery for this extended period of time. It doesn't mean that it didn't have an impact on the market. But I think it is -- I don't know if it's

a 100 year storm, or 200 or 500, or what it is. But I think it's very unusual. And I can't recall of another incident even close to that.

It's certainly not that unusual I think, as an example was mentioned yesterday, for a processing unit at a refinery to be out for an extended period of time. Several years ago the refinery had the crude unit taken out of service. But typically what happens is the refinery gets back on stream again and is producing product, maybe not as efficiently and probably not at full capacity, but they're not completely out.

Typically one two months might be a maximum time in my opinion that a refinery would be completely out of service. And they do this by change crude slates, buying and selling intermediates, running it at a reduced capacity, you know, a lot of other kind of mechanisms to get back on stream again.

I think this was also aggravated by the fact that that wasn't known at the time. There was a belief that it was going to be back on in a reasonable period. And then at the last minute it turned out it was not. And that had a role in generating this second one. Moving on to the next

period in 2000 and 2001, the events here were somewhat different.

But I looked at standard deviation of the price series. I think Tony, yesterday, used a slightly different method of measures of volatility. But I think basically it came to the same conclusion that the volatility here was about the same as it was elsewhere, this being a look at New York, US Gulf Coast, and this being New York Harbor.

The next question is, well, how did particularly the incidence of 1999, how did those translate into refinery profitability? And I think this kind of speaks to the point that Mr. Sparano was making yesterday concerning that understandably, from a public point of view, a lot of attention is paid to the 25 days, or whatever it is, of price spikes, and not too much to the other 330 days of the years.

But those add up, even though it may be only a few cents a gallon, not 20 or 30 cents a gallon. This is information compiled, so called SFR survey, that the US Department of Energy does each year. And in 1999, actually because of these disruptions in California, they did a special

study. It broke pad five out from the rest of the country. It calculated the return on investment in refining and marketing for pad five refiners.

Unfortunately, this hasn't been updated since, and probably with the ownership changes in the methodology they use, I think it might be difficult for them to do it in the same manner. But what this shows is that on average for the 1990's the return on investment for pad five refiners was about five percent.

In 1999 it was about ten percent. Ten percent being the approximate cost of capital to the oil and gas industry. So I think what this shows is even though the margins might have been very high for short periods of time, they were low during other times. So that effect was not that great. And I think what happens is that when prices get high, and I didn't bring the charts of imports along, but you can see large surges of imports coming in following these price spikes.

And when those come in refineries get back on line, the market is over-supplied and the prices then go back down again. As I mentioned, there's not data available for the last three years. We track various indicators and it's

difficult to translate those to exactly the same basis as these accounting records that the DOE keeps track of.

But 2000 and 2001, not surprisingly, were good years for the refining industry, both here and elsewhere. 2002 though, things slipped back quite a bit, and I would estimate it to being more like the average of the historical performance. The one thing I guess people seem to agree on in this is that refinery expansion is a good option.

And I wanted to focus on it because I think it is the day in and day out five or ten cents a gallon that's costing California consumers as opposed to the more dramatic short term effects. Import parity is expensive. That's an expensive strategy because of the high transportation cost of bringing products to these markets.

Crude oil cost to California refiners is about the same as it is to Gulf Coast refiners. So all that transportation cost is added to that. And we could debate exactly what this number is, but just as a for instance, ten cents a gallon translates to a billion and a half dollars a

years. What is inhibited it, we've heard discussion of permitting.

That certainly has historical probability, probably has too, both here and California and elsewhere, since many of the companies have diverse operations. In the case of the merchant refiners, they have options of investing here versus any other refineries.

For the large diversified companies they have the option in investing in refining versus oil and gas production. With oil and gas prices quite high the last few years that's been a pretty attractive option. And it is probably (inaudible) as well. But one way of thinking about adequate capacity is that it basically makes crude oil inventory available also because it can be translated quickly into refined products if the capacity is there.

Pad five can hold something like 18 days of crude oil in storage. What happens is that when you run out of refining capacity, really any market becomes an island, even the Gulf Coast, which is the largest most flexible market in the world. In 2000 and parts of 2001 the reason that market was spiky is because refining capacity was

running full out.

And beneath that, there were hundreds of examples of this pipeline was out for a day or a terminal did this, or a refinery had an outage of this, or on, and on, and on. But the bottom line is basically you're out of refining capacity. And once that occurs, help is a long ways away no matter whether you're on the Gulf Coast, pad two, pad five, or wherever.

Really, only modest expansion rates are needed to keep up with it. It's been difficult to maintain those rates. I think the latest forecast is something like a percent and a half a year, which typically is -- which can be achieved through expansion of existing facilities. Once we get to two plus percent a year, normally some fairly major type of expansions or duplications are needed.

But typically up to one and a half percent expansions are not quite as expensive. The half a percent a year, so quoted by Stillwater yesterday, I think is about what you'd get just by technological improvements. Now, those don't happen exactly five tenths percent per year. But over time that happens. And that's things like

better control systems, better catalyst, all that type of thing that are simulation of processes.

All those type of those type of things help efficiency, and helping efficiency ultimately translates into more work capacity. What I'm not suggesting here I guess by analogue is that the proper role for the state is to make these investments in refining or guarantee loans to them.

I believe with the incentives in place, and barriers removed, that the industry will make investments in refining, as I believe they will in storage facilities. Okay. Moving to make just a few comments on the SFR, and I recognize that the consultants were asked basically to test the concept and not work out all the detail, although I think they've gone, you know, quite a ways towards looking at some of the more detailed aspects.

But what concerns me from an operational point of view is the devil is likely to be in the details of this. It's an untested concept, so we have no model to go by of how a reserve operated in this way is going to work, what the bids are going to be for withdrawing it, and how this whole

process plays out in the market.

I know my general experience is that those over the years that have attempted to put rather simply concepts, or even complex concepts, to regulate markets have generally been humbled quite a bit by the process. It's a complicated market. A lot happens. I think it's very difficult to know precisely what all these price responses are.

I certainly believe that the industry players, including the refiners, the traders and everyone else, are immediately going to look at ways of exploiting the system. It reminds me of the price controls that were put on in the 1970s. I guess most people in here besides me don't remember.

But it certainly succeeded in making a lot of personal fortunes for traders if nothing else. The first layer of regulations looked fairly straightforward, but immediately all kinds of ways were found around them. And by the time the program self-destructed there were layers on top of layers, on top of layers of regulations, and still a lot of circumvention of it.

I don't know that that will happen here.

But I also don't know that this is all going to work according to theory, not according to theory maybe, but according to the method put forward that price spikes are chopped off at the roots and everything proceeds real smoothly.

I just think of the process, if an outage occurs and there's a need for the inventory of, assuming after Professor Williams talk, that there's any inventory there, we don't know what the bids are going to be to take that out. Is it going to be two cents, five cents, 20 cents? What's that going to be? It's going to take a few days to get the bidding process organized.

Then the bid has to be awarded. It's got to be scheduled into the pipeline. Somebody's got to take the risk of ultimately selling that to a consumer, because that's going to take a while. In the meantime, the person who won the bid has got to go store its products some place. The fact that all this is occurring, of course, is known in the market.

So I would expect that the rather unique components required for California gasoline will immediately be increasing in price. Refiners elsewhere typically would not have that sitting in

storage waiting. So they have to schedule it and make it -- that all has to be chartered. Only 50,000 barrels can be drawn out in one go as I understand it.

A typical tanker is probably 250,000 barrels. So 80 percent of the cargo is still unhedged, unless you win five straight days of the bidding process. I don't know how all this plays out. I'm not smart enough to figure it out. I'm not too sure anybody else is either until it's tried and done. But I'm not in a position to try to refute the figures that were calculated yesterday.

But I can say this, I think if the cost is 25 million a year, and the benefit is 250 million a year, we'd have SFR's springing up all over the place if that were the economics. It seems like it would be a very attractive venture. The third area, permitting of course comes into this. And I think my point here is that it's going to take quite a while to get this done, even if it's decided tomorrow to go ahead on it.

So the process of getting approvals of studies in engineering and further work that's needed to develop the concept, the permitting

process, and the actual construction of it, seems to me that this is at least three or four years into the future. And so at best it's helped a long way down the road.

And of course on of the problems with that is there's a lot of uncertainties between what happens now and three or four years now. Storage can be built, refineries can be expanded, almost anything can happen during that time period.

As far as building the extra storage is concerned for the industry and the need for the state to intervene and the market process to make sure it happens, I guess I would point out that over the years, probably following was Mr. Sparano said yesterday, the industry has managed to install two million barrels a day approximately of a refining capacity in California.

The infrastructure, a pretty short notice to import 100,000 barrels a day of MTBE. Now up to a 100,000 barrels a day of other components to shift largely, again, on pretty short notice to backing out MTBE and bringing in 50,000 barrels a day, or thereabouts, of ethanol for blending.

So the industry, I believe, has demonstrated an ability to meet the needs of the market. Now, as to whether these investments are considered too risky for the industry, and I think in maybe some ways they are. Certainly my experience in an advisory capacity, as well as a decision making capacity, is it's very difficult for management or board of directors to basically approve projects based on forecast of future happening and commit large sums of capital.

In other words, it's difficult to justify large investments based on the build and they will come concept. Instead, most managements and boards want to see the people coming first. And so I think there probably is a belief that industry may see it as too risky to make major investments based on long-term developments.

But as the need for it is proven, these investments are made, and I think the proof is in the last year we have seen an increase in storage capacity as has been pointed out. It seems to be a warning that if companies deem this to be too risky, as I think we were told yesterday, then it's hard for me to believe that the government is not taking any risk by doing it.

Another issues I want to talk about is storage turnover, and this probably into some of the details of the operation of it. But I think it is a concern because in spite of the spikes in the market in California, we have had fairly sustained period where the arbitrage for imports is not on, that is the capacity is at capacity, plus what I would call integrated movements by companies bringing their own supplies in, do not generate spot opportunities.

And in fact, for most of 2002 this was the case. There was one day here and I think four days here with the next major arbitrage being when the spec change over and the carbo gasoline came in in March. That's a period of over a year. No one seems to know, I think it was mentioned yesterday, six months storage life. Of course industry practice is to turn it over in a few weeks.

And so it's using up that much of an issue. But it seems to me that companies importing product are generally going to want to bring refining companies importing products. And I think their general agreement that most of the material coming in would go through refiners for

final blending, the refineries get a lot more options to the blending process, not that it's impossible the blend determinable.

But the manufacturing facilities give more options to it. They prefer to bring in their own components and take them to their refineries, blend them and ship them out from there. And so I don't see how that refreshes the petroleum reserve. Maybe there's something I'm missing on it. But I don't see how that refreshes it.

And if it only gets refreshed, if it's withdrawn and it's not withdrawn for a long period of time, I think there are issues on storage life. So I think in order for it to work refiners have to be an integral part of the of the process. And what I heard yesterday is they are not very supportive of it.

So it seems to me that for the system to work it's going to have to be an integral part of the supply system and work with the refiners on doing it. And that's all of my comments.

PRESIDING MEMBER GEESMAN: I wonder if you would elaborate on two things that you just briefly mentioned in your presentation, one being the ten percent cost of capital. What portion of

the industry are you talking about when you say that, and is that a leverage cost?

MR. HERMES: Yeah, that's probably getting into economics here that I said I wouldn't do. But it's a so called weighted average cost of capital. And the numbers would be -- I don't think you'd get a lot of different numbers if you used either the integrated companies or independent refiners.

I think you would find that number for that period of time to be approximately that today is probably a little lower than that, like eight percent probably because interest rates are down. But it's a weighted average of getting equity.

PRESIDING MEMBER GEESMAN: And that rate, which frankly seems a bit attractive from a borrowing standpoint, I would presume that you're talking about companies that enjoy a pretty strong investment grade credit rating, don't they?

MR. HERMES: Yeah, I think that's true. I think that's true. Yeah.

PRESIDING MEMBER GEESMAN: I'm just trying to search for what --

MR. HERMES: Generally that's calculated from publicly traded companies on the stock

exchange. So, yes, it would apply to I think probably most of the major refiners in California.

PRESIDING MEMBER GEESMAN: I'm just trying to search for what possible role a state loan guarantee would play in a market environment dominated by companies with what would appear to be fairly attractive cost of capital and good credit worthiness qualifications. The other thing --

MR. HERMES: I don't have an answer for that.

PRESIDING MEMBER GEESMAN: Well, I think you did, but it was between the lines as they say. The other thing that I wanted you to elaborate on is storage life of either gasoline product or crude.

MR. HERMES: Well, I think crude is more less forever. I'm not a geologist either, but I understand it's been in the ground for millions of years just waiting for us to find it. So it can be stored either in tanks or in the ground indefinitely. And among other reasons for that is it goes through the refining process that's going to clean up anything that may have -- deterioration that may have happened to it.

Product is a little trickier because frankly it's just not usually that much of an issue because you turn it over fast. My colleague pointed out to me, and I don't know how he happened to know this, but evidently one place this is an issue is with antique car collectors because they only get the car out of the garage maybe a couple of times a year and take it out.

And generally, I don't know what their expertise is in this area, but they recommend draining the tank if it's more than six months. I always read the instructions on my lawn mower, it says drain the tank over the winter. I never do it. Usually after taking it to the repair shop it will store it.

PRESIDING MEMBER GEESMAN: Any general safety requirements or other protocols followed by the industry in terms of setting a maximum storage life on product?

MR. HERMES: Not that I'm aware of. There are tests that are done that are sort of so called accelerated stability tests that are specifications of it, more for diesel fuel than for gasoline. I think this has to do with potential clogging problems. Usually the main

problem is (indiscernible) or reactions that take place in the constituents that cause these things to happen.

And those could be generated just by being slow reactions that occur over a long period of time. It can be generated by even contact with light and then, you know, a number of other things can general those type of reactions. But usually what you're worried about is solids appearing in the gum formation as it's called in the product.

PRESIDING MEMBER GEESMAN: Thank you.

PRESIDING MEMBER BOYD: Okay. Thank you. I think next we're going to hear from Tony Hoff.

MR. SCHREMP: Excuse me, Commissioner Boyd.

PRESIDING MEMBER BOYD: Sure.

MR. SCHREMP: I had a couple of questions for Mr. Hermes concerning the refinery capacity.

PRESIDING MEMBER BOYD: Go for it, since we're the ones the have to ultimately search this all out.

MR. SCHREMP: Mr. Hermes, in your refinery capacity discussion I had a question

concerning how refinery outages out price breaks have a relationship in terms of loss of supply to the market on a temporary basis. You went over and gave good discussion about the Avon example.

And so my first question to you, sir, is that if you had two refineries of different output of gasoline capabilities, one was ten percent of the supply, one was seven percent of the supply, if the ten percent refinery went out of service temporarily, there would be a reaction in the market versus the refinery that had seven percent supply went out of service temporarily.

Would there be a different reaction in the market for both of those examples?

MR. HERMES: Well, I suppose the degree -- the problem is basically the same. I guess the degree would be greater and it would be more involved in making up the supply if the ten percent went out. And the short answer to your question is I don't know. And one of the hardest things to do in any analyzing of pricing, I've found it real difficult to be even 50 percent right on the direction of price movements.

But to try to know the magnitude of them is almost impossible because so many different

circumstances apply to it other than just physical variables involved, the psychological, I guess you would call it, factors in the market. So I really don't know the answer to your question unfortunately.

MR. SCHREMP: Yes, sir, I was not asking exactly how you would translate into the ultimate potential price break. I was just asking if there would be a difference in the two, between those two examples.

MR. HERMES: Well, I guess there would be a scenario of -- those are both of course fairly major supply points, and I suppose there could be a theoretical situation that there was -- you were running enough under capacity at other refineries that you could make up a seven percent shortfall fairly quickly by other refineries cranking up, in which case that would have less impact than if you didn't have ten percent spare capacity, which would be a lot, even seven percent is a lot of spare capacity of course. And ten percent is -- there's been times we've had that happen. It's been a long time ago.

MR. SCHREMP: And my final question, sir, is looking forward with regard to the

refinery capacity question, if one has a situation where we continue with just capacity created, and we've already seen the demand is at a rate greater than that, and more imports are coming to California now than they were in 1999, we expect more imports, if nothing else changes with this trend to be greater in terms of a percentage of supply.

So say at some future time, maybe ten years out, those refineries that were ten and seven percent of supply respectively, are nine and six percent of supply when they do have an outage the impact in the market would have the same analogy. It would not, therefore, be as great.

MR. HERMES: Right, because they're less of the total supply. Yeah. I think one of the aspects of it is the on and off nature of when inputs are small, kind of the on and off nature of them also presents some issues if they are regular because of the supply coming in that may make things a more stable pattern, because then you have regular suppliers and it's more a matter of topping up supplies that goes to finding it.

MR. SCHREMP: Thank you, very much.

MR. GIESKES: Is there time for one

small question?

PRESIDING MEMBER BOYD: Sure, not for long.

MR. GIESKES: No. I'd just like to -- I fully agree that local production would be a much preferred solution over continued imports. But I'd like to have the benefit from your perspective on double refinery capacity. If you look at the specific rim there is massive oil capacity in refineries in places like Singapore, and Taiwan and Korea.

And some of the local refineries are actually players in that market. So when we did our marine petroleum structure study, one of the considerations that imports are likely to be the solution of choice within the global refineries network is that over capacity is there. If I, for instance, look at, and I can't speak for Chevron or Texaco for instance.

But they participate in South East very large export oriental refineries. It should be very difficult to justify any significant capacitation in California from that perspective alone. What's your opinion of that?

MR. HERMES: Yeah. I guess as far as

the Far East capacity I think it currently is operating at about 88 percent of nine point capacity. Our belief, the cause of the nature of the capacity, and particularly some of the capacity in China and Japan, that we think probably like 91 percent of the capacity is probably an effective maximum rate for a region of that size.

So I certainly don't disagree with you that at the moment there's some extra capacity there. But I think it may be tighter than you allude to. A lot depends wants happen with Asian demand. We keep forecasting it's going up, and it hasn't been cooperating too much. The SARS thing now has put another big question mark on it.

But generally, our projections would have said that that capacity is going to fill up in say about 2005 or so. I think in general the efficient capacity in the world is operating fairly tightly everywhere. I'm thinking of markets these days, it doesn't take much over capacity to influence things, not much under capacity either to influence them

MR. GIESKES: I would agree with you right there, and it's a small differences between

the big numbers. That still would bear the question that in those refineries there's a lot of unexplored capacity in terms of going into deeper into the barrel, the demise of the heavy market in the future.

So if you are a global refinery, and you could add a (inaudible) in the refinery in Korea, that might be a much cheaper solution to create additional capacity than try to build something in a very expensive capital environment like California.

MR. HERMES: Yeah. I hear what you're saying. I think there's some degree of logic to it. I think the history suggest, though, that people are very weary of making export refinery capacity investments. And part of that is part of the changing environment. I guess they think they know their local environment and their competition is all in the same boat.

But you make a big investment for California RFG and then you suddenly find now you've got to make carbo instead of RFG. And those are the kind of reasons I think people I think don't make large investments to serve export markets. There's been a pretty bloody history in

doing that, as I'm sure you're aware.

MR. GIESKES: Okay. Thank you.

MR. HERMES: Thank you.

MR. COVI: One more question.

PRESIDING MEMBER BOYD: One more question.

MR. COVI: I have a question about your -- I'm sorry, Brian Covi with the Energy Commission. The magnitude you assigned to import parody, I'm thinking of two things, one is jet fuel, which we've been importing in California for about the last eight years. And jet fuel prices in California seem to be very competitive with the rest of the US.

The second thing I'm thinking of East Coast, US imports a lot more, mostly from Europe. I think about ten percent more gasoline than we do. Yet I don't see a big disparity in price series between the Gulf Coast and New York Harbor let's say.

MR. HERMES: Well, I think there's a difference about the transportation cost between the Gulf Coast and New York Harbor, a couple cents a gallon. As far as Europe is concerned, Europe has an advantage of lower priced crude oil

than the US does because crude moves from Northwest Europe to the East Coast and Gulf Coast, from the North Sea and now from Russia.

So it's really kind of a trade off of product freight versus crude freight. Crude freight typically being less than product freight. I think on the import parody there's a couple of issues on it, one there is of course a quality difference between California and the Gulf Coast, which I think is a nickel or a gallon or more.

On jet fuel there is no quality difference. Jet fuel is the same basically everywhere. There's also market pressures on jet fuel because an airplane has some flexibility in whether they refuel in Dallas or Houston, or LA. So you'd have to remain somewhat competitive here while a motorist really doesn't have that option available to them.

Also, the jet fuel can come out of the Caribbean that's otherwise destined for the US. And so your freight economics are a little bit different. As far an the import parody is concerned, I think if you're an ongoing operation and have, you know, your vessels, and particularly you're bringing it through your own refining

system, then you're getting the components you exactly need, probably the effective barrier is quite a bit less than the 20 cent number.

The 20 cent number is more what I think would be applicable if you were withdrawing from the SFR, paying your two or three cents, and then replacing that on a spot basis.

MR. COVI: So can I infer from your discussion that if we had no new refining capacity in California, and we become more and more steady net importers of gasoline, that those importation costs would be expecting to decline?

MR. HERMES: Some I think, yes.

MR. COVI: Thank you.

PRESIDING MEMBER BOYD: Okay. And we're going to hear from Tony Hoff.

MR. HOFF: Thank you, Commissioner Boyd. My name is Tony Hoff. I'm with ST Services.

PRESIDING MEMBER BOYD: You're the gentleman that wants to build those storage tanks for us, right?

MR. HOFF: We are building storage tanks. Thank you for the opportunity to make a presentation this morning. I only have a handful of slides, so this should go pretty quickly. I'm

going to focus on the Bay Area because that's my area of expertise. And my goal is to give you an idea from the (inaudible) industry perspective.

Our concerns about how a Strategic Fuel Reserve would disrupt the free market forces that are already at work in the industry, and the fact that the private sector is already responding. And that's the efficient way for the market to correct itself. I'll be covering some of the same topics that Dr. Williams covered this morning.

He did it in a very elegant and organized manner, coming from a Ph.D. perspective. And now you'll get some of it from a perspective of a rusty old tank guy. The fundamental question that we've been addressing the last couple of days, historically have there been severe impediments to non-refinery volumes coming into California.

We've heard a lot of commentary both ways on this issue. And hopefully we're coming down the end of the graphs here. This is one that we've been looking at for the last couple of days. But I've added some information here that I think might help. This graph on the bottom is Bay Area carb gasoline minus Gulf Coast RFG. So it's the

spread between California and Gulf Coast gasoline.

So these spikes that you see here are corrected for crude. So it's California specific spikes. And the time period runs from April of '97 through April of '03. What I've added up here is some information, some general information, on availability of tanks over this period of time. So looking here from about April of '97 through October of '99, tanks are readily available.

It was easy to bring spot cargos in. From October of '99 through about April of '01, tanks were starting to tighten up a little bit. Spot tankage is available only rarely. But at the same time we're starting to see more trader activity, more traders holding tanks. In that area we've got -- during that time frame we've got about 500,000 barrels in the Bay Area held by traders.

And these are gasoline traders, specifically out there looking for cargos to bring in that meet California's spec. From the period about April '01 onward, tank space becomes very tight. There's virtually no spot tank space available. Any spot cargos on the way have to rely on deal making if the person who owns the

cargo doesn't have a tank to come into.

But also during that time frame, from about April of '01 up here through April of '02, tank space held by traders is about 700,000 barrels and it increases to about 900,000 barrels starting in April of '02 and running through the present time. The interesting thing about this information, there's really two things to take away.

We do have price spikes here at a time when tank space is available. And we do have relative lessening of price spikes at a time when tanks are getting tighter. So that's one important point. And the other important point obviously is the large size and the increase in tankage being held by traders. And that will continue to increase, and we'll get to that in a little bit.

We think that this information indicates that there has been no severe impediment to importation of local refiner volumes. We're not saying that it's been easy to get import volumes into the market, but we don't think there have been any severe impediments to that importation. And these volumes that we've seen are gasoline,

nearbobs, alkaline, isoloctayne, car diesel, and we've seen large blended volumes.

On my fifth slide, this covers a topic that Dr. Williams covered in a lot more detail this morning, and something that I'm calling the after effect. By examining the cost to the consumer of the California price spikes was adequate consideration given to the beneficial effect after the spike when supply increases resulted in lower than average prices?

Dr. Williams went into a lot of detail on this. But here's a couple of graphs that illustrate this from this recent price spike. This upper graph is API inventories of gasoline and pad five. And the period is from February 9th, through April 13th. And the blue line here is 2003, and I've also got 2002 and 2001 on there for comparison.

So here we are coming down in inventory levels through about early to mid March. And this is where the graph stopped yesterday. And you can see what happened here over the next three to four weeks we had increase in inventories and then a big, big increase in inventories after that three and a half to four week period that we've been

talking about for getting cargos in here.

This lower graph shows a California, San Francisco, the blue line of San Francisco carb, unleaded and regular gasoline prices. And the red line is US Gulf Coast. Here we are at the $1.50 spike that they were highlighting yesterday. And, again, that's where it stopped yesterday.

If you look further out you can see where that price tapers off way down here to a differential that's well below the mean, the mean differential going back about three years between these two prices as 12 cents, and it came all the way down to a nickel here somewhere around April 10th. So that's the beneficial after effect, an actual example of the beneficial after effect.

This characteristic happens in most of the price spikes that I've looked at over the last two or three years. And I think if you take this into consideration it lowers significantly the cost that we've been hearing to the consumer that this spike in prices generates. The other interesting thing to look at on these two, this lower graph runs from about February 10th, to April 14th also.

So it's about the time frame. So these

behaviors kind of line up. And i t's interesting to note that inventories, that the price dropped rapidly before the inventories really dealt very much. Inventories were still hovering around here in the average category as prices came down rapidly.

A lot of that is due of course to the refinery coming back on line and being able to produce more, and getting it out into the market. But I think that a lot of that is also caused by the expectation that these cargos are coming in. So people are expecting these cargos to come and bidding the price down.

I guess another interesting thing to note about is that if this characteristic happens with a lot of the price spikes, as I believe it does, this three to four week delay in getting the cargo in had an earlier effect. The price drops earlier. So the downside to the consumer doesn't last for that three to four weeks that it takes to get the cargos in.

And the only other thing I want to say about this graph is I'm one of the 36.4 million people that will agree with Dr. Williams, so you've got one ali, that this price spike is a

good thing. And the reason that's a good thing is that it motivates this tank construction. The private sector is already building the Strategic Fuel Reserve.

This picture was taken about two weeks in our Martinez terminal. My next slide number eight has a couple more pictures of this construction. This was taken -- the top photo up here was taken about three weeks ago. This one was taken three days ago. You can see the tanks are a little higher than they are in this photo.

These tanks are built specifically for importation of gasoline and components. They're designed to be drain dry so that they can change product service very rapidly. They have an innovative design. They have an internal floating roof with an innovative design where it's sort of a belt and suspenders method of vapor recovery so that the roofs can be landed regularly, and the product level drop down below the floating room.

There will be vapor recovery in the space below the floating roof so that we can recover the vapors as we fill back up to the floating roof level and not be emitting. And that makes the air quality management district a lot

happier. So in the San Francisco Bay Area, on my next slide, number nine, traders have converted about 255,000 barrels of storage from fuel oil service to gasoline service over the last 14 months.

And when the Martinez project is complete somewhere in mid summer, traders will have about 1.2 million barrels of storage in the San Francisco area. And we're also working on another project that I was giving about a 60 percent probability when I put this slide together. But after a call I took this morning I'm giving it about a 70 percent probability that we're going to be building another 200,000 barrels at Martinez, perhaps by mid 2004.

Okay. Slide ten is Econ 101. There's a little bit of irony here. Yesterday we had the economist giving us storage tank 101, and today you've got the tank guy giving you Econ 101. This is pretty simple stuff. The price spike motivates tank construction, pays for tank construction. And it motivates cargos coming in, which increases the inventory levels, which lowers the price.

Very simple stuff, but very important. The message is the free market is at work. It's

working now. Does it make sense to have the government come in and manage this process? We don't think so. We think government intervention in the form of a Strategic Fuel Reserve would discourage increasing a supply of storage from the private sector.

We also think it would discourage the current strong traders who overcome the importation hurdles from continuing their innovation. This is a pretty interesting one. First of all, if you're a trader and you're out there working the globe trying to find California products to bring in, if you had a Strategic Fuel Reserve tank that was full you probably wouldn't be motivated to float a cargo towards California at that time.

So we think there's going to be a degradation of innovation in trying to find products to come into California. And that's counter to what we want right now. The other interesting thing is, thing about the poor trader who wins the bid on the Strategic Fuel Reserve. If a refiner wins the bid, he can make more gasoline and fill the reserve back up again in a six-week time frame.

If a trader wins the bid, he gets it out into the market. Now he's got to go out, the whole world knows that within six weeks he's got to cover that. We've been talking about thinly traded the market is. So all the parties that he's dealing with are probably going to know that he's got a time frame of six weeks to get that resupplied.

Think of what his price is going to be like and how hard he's -- the difficulty he's going to have negotiating a good price to bring in that resupply. And that's liable to discourage trading activity. So even though the Strategic Fuel Reserve may eliminate some of the price spikes, it would also eliminate the beneficial after effect of the oversupply.

And I think if you take that into consideration that the cost of the Strategic Fuel Reserve far outweigh the benefits. In the end, we believe you should let the private sector handle storage requirements so that the supply of storage tanks will grow along with the demand change driven by the demographic and regulatory environment. Thank you very much.

PRESIDING MEMBER BOYD: Thank you. A

very encouraging presentation, but let me ask you, how are you or, if not you, your peers doing in the Southern California region with regard to responding to the price spike through the provision of additional storage?

MR. HUFF: Yeah, I'm a little less familiar. And maybe some of the folks from WSPA can speak to that better than I can. But we did see some information yesterday that showed projects underway down there, both at two large terminals down there that have had old storage tanks that have been out of service that are being refurbished. And some new projects that are starting to come on line down there too.

They seem to have a little bit more severe permitting issues down there. So their time frames are a little bit stretched out. But they do seem to be responding.

PRESIDING MEMBER BOYD: Okay. Thank you. Does anybody else have questions? Does anybody out there want to ask a question? Okay.

MR. HAGGQUIST: Thank you very much, Tony. A very good presentation. And I just thought I'd just inject a little of history in here, how we ended up concluding. When we did the

study that there was a real need for storage and other ways into the California market. And it came from over stake holder meetings, sometimes two or three times with the same companies.

And these are all on record in CDCs hands. And time and time again we were told that you couldn't get into California. Now, this was 16 months ago and things are starting to improve. And we've also discovered that there was nobody doing this, this being nobody looking at the total supply and demand situation in the state before.

And the Energy Commission did Commission to study that allowed us to identify the problem. And then going back again, we didn't see any significant activity in Southern California until just recently, just recently, and that tended to be where the problem was. Well, we had seen another island economies, and we worked another island economy, Hawaii, Japan, where the refining system is what controlled the access to the downstream market 100 percent.

In those markets, as long as that prevailed, and it prevailed for years in these other island economies, as long as that prevailed, those islands we significantly higher than

everywhere else in global arbitrage where the product come to in referencing Singapore. So they paid a high price for that insularity, for the lack of access from the outside. Okay.

So if the market is healing itself that's a good thing. I think that we ought to point out that nothing in the proposal can be put on the table from our work has anything to do with stabilizing the price, as we've heard in the previous presentation. No, just connecting the price to the rest of the world.

Mr. Hermes did a good illustration in global volatility in California. If we involve in global volatility, okay, we can live with that. But we've got to connect to it before we can live with it. And until we can connect to it like all the other island economies controlled by manufacturers we'll trade and arrange much higher than the other markets that could otherwise get into it.

That's just the overall comment. Otherwise a very good presentation. Thank you very much.

MR. HOFF: Thank you. Just one thing to one of your comments, that the anecdotal evidence

about the difficulty in getting cargos in doesn't seem to jive quite accurately with actuality. And I think what happens in the interview process is all the people that can't bring cargos in are speaking very loudly.

And the folks that are getting cargos in are sitting there quietly. And so in the interview process, for the anecdotal prospective, you're going to weighted towards the side of folks that can't get cargos in.

MR. HAGGQUIST: That's a legitimate point to some degree. One more point and they step up here. I first got involved in this by being employed by, or brought in by, the independent sector of downstream markets in California, the biggest independent retailers of (inaudible) people, with the task of being cargos here. That was during the last price spike two years ago.

And what I discovered in that process, and I've been away from the market a bit, was it couldn't it be done. It couldn't be done. You could have a cargo that's 50 cents a gallon lower than this price, and you just physically couldn't get it in here, unless you went through the

gatekeepers so to speak. That's changing. I'm not saying it's not changing. But that was the problem.

MR. HERMES: And over time we've seen it's changing some, but we've seen that on a temporary basis. But long-term, I don't think that's the case.

MR. HAGGQUIST: Okay. Thank you very much, Tony.

MR. HOFF: Okay.

MR. LANZA: Robert Lanza, with ICF consulting. I had a question concerning the capacity additions that you're describing. Are they all taking place at the same physical facility in under the same of departments, or are you describing multiple facilities in multiple locations?

MR. HOFF: Now, this project at the Bay Area is all at the Martinez facility, including the one I was giving a 70 percent chance to. It's all at the same facility. Our other two facilities in the Bay Area don't have enough land space to expand.

The Martinez terminal has a lot of land space, and we're lucky that that terminal is

located with good water access, and also good pipeline access. It has better pipeline access than a couple of our other terminals. So it's a good spot to expand.

MR. LANZA: Are your other terminals surrounded by the types of facilities that would prevent you from acquiring additional land to expand?

MR. HOFF: One of them, the one in Crockett, we probably would not be able to acquire additional land. The one in Richmond is an investor harbor area, and that one could conceivably be expanded.

MR. LANZA: Thank you.

MR. HACKETT: Good morning. David Hackett with Stillwater Associates. Tony, congratulations. You know, when we started this process 18 months ago we came up to Martinez and sat down with you and your management. And you couldn't see this expansion on the table. And so at that time, you gave us some encourage about that. As I recall what you said was, you know, you send us a tender and we'd be happy to bid on it.

So now here we are a year and a half

later and what ST has been able to do is figure out how to do this commercialing. I think that's terrific. Can you do me a favor and pop up the graph with the price spike on it. I just want to say --

MR. HOFF: This one?

MR. HACKETT: Yes, sir, that one. I think that, and I'm changing focus, you brought up the graph and I want to just make a comment about this price spike thing. I think the issue is not so much is volatility a good thing or a bad thing. I think I agree that it's a good thing because it sends the proper singles to the market. The issue gets to be the magnitude of these things. Okay.

And so why did these prices go from -- and you've properly have it spread here with the Gulf Coast. It takes out the impact crew. Why did this thing go from, at least in this thing, you know, from a buck 11 to a buck 50, you know, up 40 cents. And I've seen more like 50 cents in the rest. What's contributed to that sort of extreme volatility?

Some of it was refineries had some start up problems and operating problems. There was reportedly some difficulty in creating the new

blend the gassing of the carbo. And so that contributed to some of it as well. But we've got evidence, and we can discuss that, that some of this was that there ships coming in and couldn't unload. This is an LA problem. And as you know, we've said that, you know, most of this is in LA anyway.

Cruise ships couldn't unload because of congestion. So that, in our opinion, contributed to that additional volatility. Well, I don't know if that's going to build any tanks or not, but it certainly winds up in the retail price. And so that's where the consumers get to be pretty upset and where your boss is asking you guys for answers. And so it's the extreme volatility that gets to be the issue.

And some of that question is there. And the other piece is on the inventory, prices were not 50 cents a gallon versus the Gulf Coast. But inventories got to on Tony's graph here a bit more than 28 million for pad five. That's kind of the low side of average for inventories for pad five. The industry did what everybody expected them to do, went into the turnaround period with a lot of (inaudible), 33 million barrels or 33 and a half,

something like that.

The normal high, certainly in California, we saw the normal of 14 and a half, the bottom of 28. And we got a 50 cent spike. There's some intrinsic problems going on with that. And it all comes back to (inaudible), you know. I'm trying to figure out how this stuff flows.

So there are hardware constraints built in here, as well as, you know, part of the reason it didn't go below 28 is I think that a lot of folks had purchased components, that we talked about, and then discovered couldn't make it into carbo. They didn't have the right mix in order to shuffle all that cocktail together in order to make that work. So I'm sort of off the subject, but thanks for putting up with that. Again, congratulations.

MR. HOFF: Thank you. It's interesting that you talk about magnitude, because if you looked at the differential without even taking into account the after effect, and I'm calling it the beneficial, the five cent a gallon when you come out of the price spike, if you take the numbers that you guys used yesterday, 150 million

to 300 million cost to the California driver for all of these spikes, divide that by 25 million automobiles, and it's between $6 and $12 per automobile per year.

So that gives you some magnitude. What that's paying for is the tank construction is an innovation in finding commodities and bringing them in. And that's a fairly efficient way to do it. Now, if you start figuring in this after effect, that $6 to $12 could fall significantly. And that brings the question, is anything required?

PRESIDING MEMBER BOYD: Thank you. Thank you very much. Dr. Verleger.

DR. VERLEGER: Thank you, Commissioner Boyd. It's a pleasure to be here. It was a true pleasure to listen to Jeff Williams this morning. When he got done I told somebody I can go home now. Jeff and I go way back. And, well, if you read the paper I originally submitted you found his frequent citations of his work and his work on commodity markets are really governed what I've done.

Like Jeff, I love volatility. I think volatility is important. It provides investment

incentives for the economy, and it's essential to make the economy work. Let me start by saying that what I'm going to present is my work. I am presently in my own little form and just completing at the BP Senior Council in Foreign Relations. The Western States Petroleum Association funded the paper I wrote.

But the findings and conclusion are mind, and do not necessarily reflect the views of the Council of Foreign Relations or those of the Western State Petroleum Association. A quick personal background, I'm going to consult, and I'm an economist, and I plead guilty to all those things. I work both with energy consumers like airlines and railroads trying to help them minimize energy costs and (inaudible) and producers.

I'm also a member of the National Petroleum Council, which is a body that's appointed by the secretary of energy. It was created by President Truman following World War II to mobilize the people of expertise in the business. Most of the members of CEOs of company, they have a few cooks like me. I was on the board of directors of Vallejo, and that's going to come

back because I think one of the questions we have is if this policy goes through, and if one does change the behavior of prices, what happens to the behavior of investment?

And I think we lose in investment. I'm also the author or numerous studies on the process of which oil prices are discovered. Here's what I'm going to talk about, one, this is not a new idea. I think as you've head from Jeff many times, it's not a great -- it's newly plata territory. I'm afraid it's like the increase, not decrease volatility, but that's speculation.

It will not make the market more efficient. It may raise costs to consumers over the long-term. I'm going to note, because we spent a lot of time at this last point, the gasoline futures are not a very successful futures market. Futures market is gasoline, heating oil, and crude. Heating oil and crude are very successful in terms of futures activity relative to consumption, gasoline is not.

Then I'm going to -- two points I didn't put on here, but you'll find slides on, one I want to address the (inaudible), and that is everybody -- if the benefits are there, as

Dr. Finizza suggests they are, then what are the implications? And I think they use some serious costs in terms of investment. And if they're not, what's the alternative?

Lastly, I think you do need to go back to the Governor and to the state and say we need to do something. And I'm going to suggest a few things, one has to do with affirmity. You've heard before, so I'll say that quickly. One has to do with crude oil reserves. And let me lay that out in the beginning. Strategic Reserves are in Louisiana and Texas.

They were created in the '70s, and they now amount to 600 million barrels. When they were created, those of us of the Ford Administration and the Carter Administration, looked at it and said California and the west coast doesn't need a reserve because you're exporting to the rest of the country. Today, the west coast imports from abroad, one barrel out of three barrels refined, we have no reserve.

So the western part of the United States is literally as vulnerable now as the United States was in 1973. That's a serious problem. And one policy that I think you should pursue is

getting the federal government to move some of those reserves, particularly adding reserves right not to the west coast instead of the gulf coast. And I think that's an important policy.

But let me start with the Strategic Fuel Reserve, or gasoline factor, it's similar to the reserve have been proposed over the years. The common name is a buffer stock. The original work was proposed by John Maynard Keynes in a memo to the British Treasury and a pay per prior to World War II to try to even the fluctuations of commodity prices, particularly for exporting countries.

Keynes believes government would draw stocks during periods when markets were stressed, build them when stock prices were low. Unfortunately, our experience with buffer stocks have not been positive. We've tried it coffee. We've tried it in tin. We've tried it in several other commodities. And as they go to the Newberry note in their finding book, commodity market stabilization, they tended to price agriculture prices usually.

And where we attempted to dampen price, the price levels have been raised. One of the

more recent episodes I think was with the rubber, International Rubber Organization. The producers like high prices, and others like lower prices. Buffer stocks also have an effect. Jeff pointed it out earlier to substitute private stocks, public stocks or private stocks.

And so the analysis of the stabilization programs has led theorists to conclude that the benefits are over estimated while the cost of these programs are under estimated. And this is a line that you can find many times. I borrow it from Joe Stiglitz. Creation of buffer stock also alters long-term market dynamics. Supplies of agriculture products protected by floor prices have increased in the passage of production limitations.

We can look through the long history in agriculture here. Productive capacity for good subject to price ceilings generally declines. That's why we don't like price controls. And the mismanagement of buffer stocks often contributes to even greater price volatility. Most buffer stock managers have even sold too early or too late during worst jobs than the market would have done.

And they have often failed to account -- that they accounted their actions on private inventories. Now, consumers have paid for this mismanagement. And Petroleum Reserves have precisely this effect. Strategic Petroleum Reserves, crude oil reserves have replace private reserves in the OECD countries. Over the last 20 years stocks have gone up by roughly 20 percent, but private stocks have declined by 20 percent.

Here's a graph. It shows total stocks in OECD regions. The source is the International Energy Agency. The black area is public. The grey area is white. The grey area is private. Now, Jeff Williams and I -- Jeff will love this graph because in 1980 we had a program when I was visiting a fellow at Yale, what replaces the Emergency Petroleum Allocation Act, all those regulations that were mentioned earlier?

And Brian Wright and Jeff wrote a paper, which is published in the Bell Journal, looking at what the effect of the Strategic Reserves would be. I think that paper suggested that there would be roughly a two thirds of a barrel replaced. Private inventories would go down by two thirds of a barrel for every barrel that went into public

stocks.

And that forecast is amazingly accurate. That is despite the fact consumption has gone up, the stocks have gone down. Now, as I said, this leads to an issue of consumer price volatility. And one area where one might argue for buffer stocks is if you can show there's serious problems in terms of the competitive environment.

And you can show OPEC is the elephant in this room that nobody has talked about except Jeff. All the studies show that if we had a competitive crude oil market the oil price would be about $20 a barrel, $18, $17. That's kind of where it goes. It might be a little more volatile, but that's the price you'd be at.

Economic studies by Green and Leaby and Professor Hamilton down in San Diego also say that there's substantial macro losses because of asymmetries. That is we lose more when crude prices go up and they go down. So according to Green and Leaby we transfer roughly one year's GDP unnecessarily to oil producers every 20 years because of the monopoly power of OPEC.

And so you can come back and say, well, due to OPEC you might want to do something. And

if you particularly if you have a problem in crude markets, and you built this buffer stock, and you mismanage it, you can see much higher prices. And we saw such mismanagement this last December and January. The Venezuela workers went on strike. Crude exports/imports in the United States dropped. Crude inventories went down.

As the models of inventories predicted, buyers were paying higher and higher premiums for prompt supplies of crude oil and the oil wasn't released. And so what happened is the consumers got stuck with a higher price, mismanagement. Well, you come back to the question on private stocks. Private companies see these. The National Petroleum Council has done studies on minimum operating levels for the companies for at least three times.

I have participated in two of those studies. Each time we determine the minimum operating uses are declining. The you see type money come along, and companies achieve even lower levels of inventories. And there seems to be some relationship with the speed of adjustment and getting stocks down. And, you know, the financial situation, as well as the possible return on those

stocks.

One company publicly said last year that they have cut their stocks from 65 million barrels to -- 60 million barrels to 54 million barrels between the middle of last year and the end of last year, just to try and keep their credit rating and because they're worried so much about the money. That is worldwide. And you can see it on data on usable commercial days of supply.

This is a chart I use regularly. The data collected by Energy Intelligence Group, and what it shows right now we have roughly three days of usable commercial supplies of crude and product in the OECD. And a lot of this has to do with economics, the potential returns from holding stocks and the like. And another statement made by a company was why should we hold stocks right now when we expect crude oil prices to go down?

But I think my conclusion is that a Strategic Fuel Reserve would be identical to a buffer stock. Public stocks are probably replace, private stock, substitution. We heard -- And I was glad production was coming today. Supply of gasoline from California refineries would be to reduce the extent of the buffer stock moderates

margins.

We can't get away from the fact that production and output depends on profitable margins. And if this stock is successful in reducing margins, you'd expect lower output. Refiners are also less likely to expand refinery capacity. The (inaudible) by Bob Hermes will slow. The California will become more dependent on imports of gasoline whether from the Gulf Coast, from Canada, the Caribbean or wherever.

Yeah, I will tell you I've heard company after company, executives say it, one was said yesterday that they look at projected returns in making the decisions on investments. And the refinery in California right now they may not continue making an investment if their fee would be passed. Well, I listened yesterday to people talking about this an energy bank.

And finally I just had to say this, that calling the gasoline reserve a gasoline bank does not change the program's nature. And a borrow from Charles Schwab changing the name may just put lipstick on the page. The SFR will not make California gasoline markets more efficient. Deficient complete markets are the key to reducing

volatility.

What we need is cash and forward markets, and we need the two markets to transfer the commodity from the present to the future. And the concept of storage is transferring from present to the future. I didn't understand this until I read Jeff's book more than once on the economic function of futures markets. Now, futures markets to promote them into our building can't be mandated.

You need sellers and buyers. And efficient markets, if you get them, will promote storage when they are fully developed. I don't think the SFR will make the market more efficient. It's not going to create the market. So I raise the question is this a field of dreams? Well, if you use the field of dreams analogy what you think of is a baseball team. And what you need is longs.

You need two teams to play baseball. You needs shorts and longs in a commodity market. Refiners are natural shorts. Jobbers are natural shorts. Jobbers don't go out and buy gasoline months ahead of time. They can't afford it. The banks won't lend them the money. They don't take

the risk. Unfortunately, there's not many natural longs in petroleum markets.

This market is one where there is. Airline of parcel deliverers have become large hedgers. In fact, the reason we have such a robust jet market in Southern California is the airlines did not like dealing with the refiners. The airlines hired oil company personnel. They built their own oil companies, and they essentially pride open the hydrant system at all the world's major airports.

They buy the products. They ship it. They buy terminals. They buy pipeline facilities, and essentially they work the price down. Why? Because they sell tickets forward. They made sales to consumers and they want to hedge their fuel cost. One airline that didn't hedge, the United, is in desperate financial shape as compared to Southwest, which is fully covered.

Home heating oil also hedged their purchases. Your hearing oil dealer comes around and you can sign a contract with him to buy oil. You have some enforceability problems that dealers are now dealing with because the prices go down some. Consumers will try to get out of their

contract. But this is a robust market, and I'll tell you as one who has lived in New England, a lot of people do this.

Unfortunately, there's not many longs for gasoline. The potential is limited by the structure of the market. One, the points of purchase are randomly distributed. You buy one day in North Sacramento, one day in South Sacramento. If you're in Orange County you buy at Newport Beach, you buy in Downtown LA. It's different stations. It's a convenience thing.

It's only $30 or $40, $20, depending on your car. Now, I could get around that, and for years we've tried to. When something like the AT&T card, one of these cards you buy at the hotel, which gives you prepaid calling. Prepaid gasoline, great idea. PMPA, Petroleum Marketing Practices Act makes it almost impossible to do that because a company cannot instruct a jobber or somebody else to accept it, because it's effectively setting the price the jobber has to take.

You can get the jobber to agree to it, but what you have is a situation, well, I sold you a card with XYZ oil and it's good at ten percent

of XYZ oil stations, but not at the other 90 percent. You have variation of state and local taxes, so it has to be good only in California. Now, I'm not sure, I think there was a point that was made earlier, I'm not sure it would really cause the consumer to do much because energy is not a big share of the consumer's budget.

On the PCE data, personal consumption expenditure data at the Department of Commerce it's four percent. And that's electricity, natural gas, heating and gasoline. So it's a little hard to get it. An airline or something like that at 16 or 17 percent, trucking companies will do it. Now, Stillwater suggested the creation of putting together and SFR would lead to the emerge of the futures market.

I just don't think so. I think they have conjured up a field of dreams. Inventories do not create futures markets. Buyers and sellers, desire of the seller to lock in long-term prices. Without the long there will be no market. The best example of what happens if you don't long market is electricity where you had all these electricity traders that were using one another and eventually somebody discovers like Wile Coyote

that's he's run over the error at fault.

And all the companies that got into electricity trading now, including Duke Power, are gone. Inventories are not likely to increase without these markets. But companies would redouble their efforts to cut stocks. Now, California, as I originally talked about this last year, can improve the market, a market deficiency by creating longs.

Government are a natural long. You also have a budgetary problem. So it would be great if they could purchase large volumes of gasoline and diesel, use a few suppliers as competitive bids by putting out for supply for futures of fixed price, create the forward demand, make the market more complete. The trouble is, and then the wing bidders would have to line up the supplies.

They could contract with refiners, contract refiners or buy from traders who would repeat step one and two where they could buy crude. Over time volume would increase and California could follow the experience of other markets. Ben Franklin said there's nothing ugly aside then a brilliant theory mugged by a gang of brutal facts.

And yesterday Jeff Williams mugged that theory hard. If the market is not there and consumers cannot be enticed into forward purchases, no economic incentive to build stocks. You can't make it happen. Now, let me go back, the only question I have is whether this other school districts, and cities and counties, if you added them up, maybe you could find more, but I'm dubious.

The other problem we face with Strategic Fuel Reserve is gasoline is least accessible to all the futures markets. It's a fraction of the hearing oil, crude oil or natural gas despite the high level of consumption. Gasoline consumption is nine million barrels a day, heating oil consumption nationwide is two million barrels a day. Yet there's more open interest, more volume in heating oil.

Relative lack of success is due the problems of hedging and the consumers unwillingness to hedge, and the structural problems such as PMPA. It's just not something where there's a big natural forward market. Now, I did this chart. This chart just shows open interest in gasoline futures, which is commitments

by consumers, or buy buyers, either the longs or the shorts, on the NYMEX as a percentage of total petroleum futures.

Since gasoline is important you'd expect to see it something like 50 or 60 percent. It's 15 percent. And people will tell you it's harder to trade gasoline. Let me then move to a question of the free lunch. We have conjured up a program with economic benefits. I pulled this off the slide last night, and maybe I made a mistake of 320 or 650 million per year.

I couldn't find cost so I made a guess, 120 million dollars, purchase of 2.5 million barrels of gasoline, 90 million annual storage costs of 31 million or something like this. This is just using the numbers I heard around here, strictly conjecture. Now, I know Stillwater suggests maybe we can get money out of EPCA. I'm not sure.

Now, just as you think about this, the free lunch, following the mastercard economic security and the implication is priceless. The trouble is, as we teach in economics, there aren't any free lunches. I'm not sure that there aren't benefits. I'm not sure. Tony and I have known

each other for 30 years. I'm not sure that Tony, if you use a nonlinear demand model, and the gasoline lucidities, Professor Houghtakker and I estimated 30 years of .017 to .15 are remarkably close to his.

They were the first ones and they were a bust. And they're also long linear, which means you have a long linear demand curve, which means you do get benefits. I'm not sure there aren't some benefits. But that means refiners will seek profit. Lower profits will lead to either reduced investment or lower supplies, sales of refineries to undercapitalized firms, or exit enclosures.

And, you know, let me pick on the second point for a second, for a minute. The Federal Trade Commission, under its merger's policy, is mandated the sale of refineries starting with BP AMACO and then Exxon Mobile and then the BP AMACO, Arco.

At the invitation of Tim Burroughs, who's chairman of the FTC, I prepared a paper a year and a half ago arguing that the FTC should use a different policy on refineries, which is a demand of merchant parties agreed to expand capacity by ten percent come hell or high water,

overcome all the other hurdles, because this is what we need.

And my concern is that this is a capital intensive business. And as we've seen in capital intensive business like airlines and other businesses, you go through many years of very low profits. And if you don't have large capital basis, you have great difficulties funding investments to make clean gasoline, funding investments to expand.

And right now we're seeing that in much of the United States where some smaller refiners will probably be closed. As Bob Hermes and I have talked many times in the past, the refining is not a huge money making business. And if the integrated companies have it, to a certain extent they make some investments that their boards might not want them to make.

With the sales and the shift, I worry that in the next ten years we're going to less investment. We may even see one or two of the big companies decide they just don't want to stay. So I worry that if those benefits, if in fact it worked, and that's an if, then you'd see California becoming more dependent on imports, and

Californians paying probably a higher price of gasoline.

But like I said, there are no free lunches. Alternatively, the SFR will become a boondoggle, which will cost the taxpayers money, have no effect on the price of gasoline, and line the pockets of a few traders. And that's what I fear happens. California can't have it both ways. A lesson of electricity deregulation, which was designed by good economist, good lawyers, working around a tough problem, should send a clear warning to everybody to be careful.

So let me conclude comments that buffer stocks, such as the SFR, have a terrible history. They don't work. Even the buffer stock that should, the Strategic Petroleum Reserve, hasn't worked. Stocks do not cause inventories to increase because they don't monitor any price volatility. However, they can depress supply. That the history.

Markets can promote stock building if we can create forward markets, forward purchases. They contribute to more complete markets, higher inventories and less price volatility. And they do that by bidding up that forward price, and so

reducing the backwardation. They do without government stockpiles. Well, I've been a government policy maker. And I know when I get an assignment I've got to go back.

You can't go back and just say it's a bad idea, boss. You can do it a few times, but you've been in that role a long time and you just can't do it. And I think there is, you know -- we've talked about the permitting. I think one element, and another element, that you haven't talked about is the Professor Boinstein proposal to come up with some sort of mechanism to allow the sale of gasoline more easily if there's a blending problem.

And I'm just not sure how often there are blending problems. But I think the big issue is what happens if there's ever a real disruption of crude oil supplies. We looked at this last January. What happens if Iraq had Kuwait? What happens if Osama Bin Laden tomorrow we wake up and he's take over Saudi Arabia and he cuts Saudi exports, or (inaudible) get blown up?

Well, California is real exposed and your phones are going to ring off the hook. And the west is real exposed. All 620 million barrels

of the Strategic Petroleum Reserve are located in the US Gulf Coast. And there's no way to get that oil to the west coast, none. You would have to go through the Panama Canal on a Jones Act crude tanker, and there aren't any Jones Act crude tankers.

So I think capable. So suddenly we're sitting here with one third of our crude oil coming from abroad, no strategic stock out here, and the nation's strategic stock is on the east coast. You know, what we would have to do is wind up trading. I spent a good deal of time in Japan working with METI and now it's METI, Administrative Economics Industry and Trade. And the Japanese National Oil Company, which manages their Strategic Petroleum Reserve.

And maybe we can work in exchange with them for something because they have a large reserve, but we have a problem. So I think that my recommendation, if I were going to go back and say, look, all the, you know, the studies Professor Williams in particular said, you know, this is not a big issue. But one thing where we are exposed is if there really is a disruption we don't have any crude.

And we ought to try to lobby the federal government to locate some of the crude out to the west. And you can lean on people, like Secretary Snow, who was in the Ford Administration, and Vice President Cheney, who was Ford's assistant, and others. We made the decision at the time, and I was a little staff person there, but to put all of the SPR on the east coast because the west surplus.

We were going to be exporting Alaska oil down to the Gulf Coast. The pipeline was built across the Gulf Coast. So in 1975 when the whole program was designed that wasn't a problem, and it's become a problem now. That's the big issue. That's the elephant in the room. Thank you.

PRESIDING MEMBER BOYD: Thank you. Any questions, staff folks, anyone in the audience? Commissioner.

PRESIDING MEMBER GEESMAN: Yeah, my recollection from the '70s was that part of the snake oil that the Ford Administration sold us was that we had Alkalis as well. And I think some successor republic administration chose to privatize that.

MR. VERLEGER: I worked at the both the

Ford Administration and the Carter Administration. And even the Carter Administration tried to sell it, but it later got sold. But, you know, the snake oil of Alkalis was never very good because the one problem with oil in the ground, I'll differ with Jeff, is that you can't get it out very fast.

And Alkalis oil, you know, you tested it and there weren't enough wells in there and everything. It's California heavy crude. So in the first place, it doesn't flow very well. Really, what you want is a mine, not a well to get the oil out. And whereas the Strategic Reserve we can produce our reserves out of the US, plus Japan, plus Europe at ten million barrels a day for 90 days.

So we can take a huge disruption. It's just not located in the right place. Alkalis was kind of puny, and it was -- I don't think they knew -- I certainly know much about it at the time. In the Carter Administration we looked at it. We tried to sell it and somebody said that was a bad idea. It never got anyplace. I think Jim Schlesinger didn't like it.

PRESIDING MEMBER GEESMAN: Where would

you store 150 million barrels in the western states?

MR. VERLEGER: Since it's going to take a long time to get 150 million barrels here I would respectfully take a look at, you know -- leave that to some authorities. I mean we've got right now -- I mean right now the government is adding to the Strategic Petroleum Reserve. One of the points by the way was that I meant to raise is we did a lend program in 2000 to lend oil out of the Strategic Petroleum Reserve.

30 million barrels were released when OPEC pushed prices to $35 a barrel. And the parties agreed to -- the auction was done where parties agreed to return more oil than they took out. They were given a year to do that. And then the return dates have been progressively put back. Until a year and a half and two years this market stayed tight confirming the point that Professor Williams made that, you know, if you've got an empty tank you don't want to refill it. You want to keep the market.

We started refilling it heavily last springtime, and Senator Levin's committee -- or the Senate Operations Committee, the minority

side, has issued a terribly detailed and excellent report on the mistakes that have been made. Because we started refilling it when crude prices were low following 911. And then when prices went up we kept filling it.

But there is a program to fill it. And what I do is try to say, okay, we identified the facilities which can hold crude right now for a couple million barrels. Move them there, and then go a step further.

MR. KAVALEC: I'm Chris Kavalec from CEC. Thank you, Dr. Verleger for an outstanding presentation. I had a point I think just of clarification. Is your position that if we have an SFR and it works, and does stabilize prices, that will then reduce production and reduce refinery creek in the future?

MR. VERLEGER: I think it would really successful stabilize prices and probably lead to a refinery project. And so we wind up importing more, and you'd be stabilizing at a higher price because you'd be importing more.

MR. KAVALEC: Okay. So my question is then why would we want to do anything to stabilize prices, including for example promoting futures

markets or forward markets?

MR. VERLEGER: I don't think government should be promoting stabilization. I think that futures market are created by willing buyers and willing sellers. And the government function in creating futures markets is strictly to make sure that the markets are provide a regulated fair mechanism so they don't get manipulated. And if willing buyers and willing sellers want to engage in trade, they should be able to.

Now, I will say that governments, the Indian Government, has frustrated futures markets because sometimes a lot will happen and sometimes they don't. And other countries have prohibited agriculture futures market. But economic research shows that that's a good way to achieve market stabilization.

Let me put it, for parties wanting to stabilize their prices to achieve stabilization. I think if you want to, you should be able to stabilize your gasoline pricing. If I don't want to, I should be able not to.

MR. KAVALEC: Okay. Thank you.

MR. GIESKES: Thomas Gieskes, with Stillwater. That's very good. I have here a

recent article in the Petroleum Economic Monthly.

MR. VERLEGER: Sir, can I ask you how you got it?

MR. GIESKES: From the Petroleum Economic Monthly.

MR. VERLEGER: No, how you obtained it.

MR. GIESKES: By reading the economic --

MR. VERLEGER: No, how did you get it? I mean the reason I'm asking you this question is we have a copyright on it. I have a copyright attorneys. It's a very expensive publication. And you in fact have in your hand stolen property. And I will not entertain a question on it.

MR. GIESKES: It would have been an interesting question.

MR. VERLEGER: My lawyers have instructed me that protecting copyrights, after all this is how I make my income, and I charge a significant price and, you know, what you have done -- what you are right now is in the same situation as the person who goes to the gasoline station, fills his gasoline tank and then drives off without paying. You're standing there right now as that person who's driven off in a gasoline station.

MR. GIESKES: I'm not sure if that's the case.

MR. VERLEGER: US copyright law says it is. And you're being televised so I could take you to court on this.

MR. GIESKES: Well, it's unfortunate it doesn't have the original article in here then. And, indeed, the (indiscernible) copy.

MR. VERLEGER: I have a photocopy of the copyrighted materials illegal. My lawyers tell me to protect my copyright.

MR. GIESKES: Okay. And in that case --

MR. VERLEGER: I will not entertain the question. I'm sorry.

MR. GIESKES: Maybe you would like to comment on it, nevertheless, because it's a very interesting point that you've raised there.

MR. VERLEGER: I said my attorneys instruct me to protect my copyright, not to do things like that.

MR. GIESKES: Okay. Very good. Thank you.

MR. FINIZZA: Tony Finizza. And, yes, I've been your friend for 33 years. And so I'm only going to ask one point per decade.

MR. VERLEGER: You also just turned 60, so happy birthday.

MR. FINIZZA: Thank you. I'm also not the source of that document because you know you kind of cut me off several years ago because I wasn't paying, which makes economic sense. I had a couple of questions, one is -- well, actually first is a point. Yes, I'm sure we can probably refine the analysis and get the benefits perhaps a little bit more to some people's liking, maybe smaller. But I don't think you're going to go to zero quite frankly.

But I did calculate, but didn't publish, but I just wanted to let you know I calculated the loss about over 200 million dollar a years, which if you think of a capital base of roughly 20 billion in California would be ten percent rate of a return investment that Hermes showed. It would be about -- profits would be 200 million less a year profit. So anyway, that's for information.

MR. VERLEGER: And let me comment. That's an excellent approach. The thing is that refiners do a calculation, as you know from your experience at Arco, project by project. And you have an array of projects. And so if one project

is -- if you've reduced the return on that project, or the return on that market, that project may drop down in terms of the priorities and lose out to other projects because there's competition within a corporation. So the question just isn't the average, the average returns are important.

MR. FINIZZA: No, I'm just trying --

MR. VERLEGER: Yeah.

MR. FINIZZA: -- to help you quantify what you said.

MR. VERLEGER: Right. Sure.

MR. FINIZZA: And I would say many of the creep projects probably have high rates of return because they're not large investments. But I would agree with you, they probably would expect, if I were to go out in this environment. I think it's quite possible. On your point about the Strategic Petroleum Reserve in the past, I've always wondered that correlation that you show that as soon as the SPI came in, it's a slide, again, I don't know what number it is, it's three maybe, it always seems correlated with the institution of the SPR.

And that's, you know, that's a good

correlation, but I'm wondering if there are other things going on at the time. For example, we had a lot of refinery closures, so the working capital of inventory may have been less. You have fuel refineries. Second, would it also be likely that when you enter the high price area to a lower price area you might have had a runoff?

And then finally, this is actually not that pertinent to the gasoline, but when you see your refining industry and you see this big gorilla out there, the Strategic Petroleum Reserve, as far as I can tell the only time it's ever really been used in any large volume was when he took oil out to put it in the heating oil reserve.

There are at least two incidence where there were attempts made as a bid of three million barrels at one point.

MR. VERLEGER: There was the 30 million barrel withdrawal in September of 2000.

MR. FINIZZA: And wasn't that going to the heating oil reserve?

MR. VERLEGER: No.

MR. FINIZZA: It was something else. Okay.

MR. VERLEGER: That was a release. And there was also a January 17th, 18th or 19th, 1991 announcement, which they said we would open it up for unlimited amounts.

MR. FINIZZA: But there's no actual shipment, was there?

MR. VERLEGER: No, but it caused prices to drop overnight by, traders can tell you, $10, $12 a barrel.

MR. FINIZZA: I'm wondering, my basic question is, after using more like in rational expectations, if you don't see this thing being used that often, don't you kind of start ignoring part of it? Is that a possibility?

MR. VERLEGER: That's an excellent question. And I think part of the answer was that you could see this year that if you took a company in January that was considering buying incremental crude, take a refiner that has below B minus credit rating or something like that, wanted to buy incremental crude, the banks would require it to hedge.

So the firm would be buying its crude oil at $35 a barrel at the time, and if you couldn't sell futures they probably couldn't

because it wasn't credit worthy enough. And so it would have to buy put, paying ten cents a gallon to hedge for a month or something like that. Now, those companies, you talk to them, they weren't buying crude. They were worried about cost. But they were also worried about buying crude because they though the SPR might be used.

I mean Valero said publicly to the Washington Post that why should we go out and buy crude right now because we know prices are going to fall dramatically. And so, you know, whether it was thinking of OPEC or thinking about the SPR. And I what they thought was there was an expectation of use of the SPR if prices got too high.

MR. FINIZZA: My final question, this is really I didn't expect to have to ask this one to you, but do you think you could reinstate me on your mailing list at a historical rate?

MR. VERLEGER: Let's have lunch. We're not that far apart. We haven't talked to each other for a year.

MR. FINIZZA: But seriously, if a month from now you hear that an economist stood up at the California Energy Commission and proposed that

a buffer stock be instituted in California, and you learn later it was the Strategic Petroleum Reserve, would you believe that -- what would be your thought on that?

MR. VERLEGER: The Strategic Petroleum crude oil?

MR. FINIZZA: The one you just proposed, the crude oil one, yeah.

MR. VERLEGER: I'd be stunned, but I think I mean what I'm saying is the federal government ought to locate part of the reserve out here because we have no way of getting the federal strategic oil out here. And the western economy is now in precisely the same situation that our economy was in 1973 when the oil market was disrupted.

MR. FINIZZA: Would it dissuade possible shipments if there were a disruption? We know the trigger mechanism for that, as I recall from your writings, wasn't very swift.

MR. VERLEGER: You know, the --

MR. FINIZZA: You need the president to say something.

MR. VERLEGER: You need to say the president to say something. The question, yeah,

why do we have right now Strategic Petroleum Reserve? We can argue that it ought to be used --

MR. FINIZZA: God if I know.

MR. VERLEGER: -- to confront OPEC. But we're not using it to confront OPEC.

MR. FINIZZA: Yeah. I mean I agree. You've said that for 30 years.

MR. VERLEGER: The question really is if you have a Strategic Petroleum Reserve, and there's a serious blow off in the Middle East, which could happen. The situation in Saudi Arabia, they're continuing to read the recent Atlantic articles. And so oil flow out of the Middle East would cut for some reason. It's a problem.

MR. FINIZZA: Would part of your recommendation be a different trigger mechanism for this ?

MR. VERLEGER: For the SPR?

MR. FINIZZA: Yeah.

MR. VERLEGER: The one I've recommended for a long time, which is to use the forward price, that is let people borrow it at any time, but agree to return to more oil. That I think is what International Economics has on their website.

MR. FINIZZA: Thank you.

MR. HAGGQUIST: Yeah, Greg Haggquist again. I think here the review of things that was interesting kind of trigger mechanism you just described. That's kind of what we described for this gasoline reserve. My concern is --

MR. VERLEGER: I saw a similarity.

MR. HAGGQUIST: Yes, similar. And, you know, similarities is part of the problems, these criticisms, you know, they say that all generalizations are false including this one. So my concern is response to the proposal you put on the table, buffer stocks. The way if you put everything in the same category it's kind of like right racial profiling, you know.

You look like this, therefore, you must this type of an entity. And I think it's not just putting lipstick on the pig in trying to draw attention to what is in fact unique about this proposal. To say that it's been tried many times. I would say it's never been tried, this proposal, because there's never been a place like California.

And there's never been a liquid commodity like gasoline is so important to a

nation state such as California. And there's never been a proposal in which it serves, not so much as buffer stock, and landfill. Once it's there, there's a conduit for which, you know, you can draw in supplies from the outside and know what your cost is going to be when you put the ship on the water. So I would just, you know

MR. VERLEGER: I think Jeff Williams laid it out very nicely and clearly this morning. If it's going to -- if it's bought for whatever you're calling it, I feel like I'm watching a game of three card Monty, one day it's the -- I'm trying to find the P under the thing. I'm never going to find it.

You know, in a dynamic analysis, and you have to use dynamic analysis on something like this, if the cargos are purchased to go into the Strategic Reserve other cargos are not going to be purchased for California. There is going to be a substitution of cargos. And I think Jeff's presentation was crystal on this. You're just not going to get more gasoline here.

What I'm trying to say is to get more gasoline here you need to get people to buy in the forward market. And what that forward buying does

is life the forward price, encourage inventory building. And where Professor Williams comes out is that he doesn't see much of that there. And I'm afraid he's right.

But, you know, I have pleaded with Costco and I've pleaded with Walmart at times to offer deals at Walmarts where they essentially say in the springtime you go in and you're selling spring gardening furniture, buy your summer gasoline now. You know, the Walmarts are going into the gasoline business. They achieve economies of scale and scope, which kind of is like.

And just essentially forward buy it because then they forward buy the crude oil and they can do a deal for the consumer. They won't try it. But you need that forward market to get more inventories. And you need more inventories to get what you're seeking.

MR. HAGGQUIST: We certainly agree on all that, Phil, definitely. You're absolutely right.

MR. VERLEGER: And you're not going to get it your way.

MR. HAGGQUIST: Well, you know, the

Costcos and the Walmarts, you know, they report that they would in fact do what you're describing. They're very interested in those forward fix prices if there could be a flow where they identify, you know, their forward cost. So if the cargos could come in, it doesn't even have to be a cargo, it just has to be role, a more rational role.

That is to say that if the barrels are borrowed today it doesn't have to be replaced with a cargo. It can be replaced vocally six weeks later.

MR. VERLEGER: The problem they have is if you sit down with them and say, okay, if you're going to go this way you really have to do what United Airlines did. You really have to do what American Airlines did, which is create an internal oil company. That is you have to have buyers. You have to start scheduling of the pipelines. You have to get terminal space. And you actually have -- when you sit down and lay this thing out the logistics of the thing turn out to be more than they have been willing to take right now.

Walmart has a much better solution, much more efficient solution, they invite Murphy Oil,

or Tesoro in to open stations, or Sunoco, on their properties, and they move a lot of gasoline and lower prices. You know, it's the cost of running it, you know. I've beat my head against that wall with a couple people that way.

MR. HAGGQUIST: There's just one final thing and, you know, these areas I certainly agree with. The forward markets are important, and the private sector can do it. What we've been bumping into, as we said at the beginning of this whole project, it's a logistics, stupid. You couldn't get in. There wasn't any way to get from where we wanted to be, from where we are. So we think this a way to create some liquidity.

So who is the natural long in this gasoline? Once again, the natural long is the State of California itself, external supply. Just as New York Harbor is the natural long, South American supply and European supply. But I think this overall is good debates.

MR. VERLEGER: Well, no, let me say, New York Harbor is the natural long, and the State of California -- New York Harbor is an intermediary. Somebody has to be on the other side or the market fails like the electricity market fails.

MR. HAGGQUIST: Well, the Costcos, the Walmarts, the independence are non-branded.

MR. VERLEGER: Well, no, let me tell you who's the natural long in New York Harbor, it's all the heating oil consumers. It's some of the power generators that substitute heating oil for natural gas. I mean there are a whole lot of end users who actually take positions. It's not the state. And the gasoline market there are Hertz, there's Avis and there's some other commercial uses of gasoline.

But if you look at it I think you look at the CFDC data in terms of the long side. It's not huge. This is why that market is much smaller. And you say the State of California. We have to -- you have to be more precise. Is this person driving to work on the LA Freeway or Santa Ana Freeway, or here in Sacramento, is he going to buy forward? Is it the State Highway Patrol? Of course Williams said it ain't there.

So I mean just saying, well, it's the State of California (inaudible) you've got to find your longs, and you haven't found them.

MR. HAGGQUIST: Well, the same principle applies in New York State and New Jersey. Where

are you going to find your longs if you're the cargo seller from Rotterdam selling the cargo.

MR. VERLEGER: As you know, markets work -- I have a couple of heating oil clients, small guys who distribute a lot of heating oil up and down the Hudson River. They do fixed price deals. Brian was talking about being in Main. He was dealing Dead River, sells heating oil to people. Now, because they go, people write out a check ahead of time, lock in their price.

And they do aggregation, you know, and they aggregate this in. This is the agricultural system. The farmer doesn't use (inaudible). It can happen. You've got find your long.

MR. HAGGQUIST: Yes, I agree. I just agree, and I think that part I agree with you. I just wanted the dialogue to be brought to this level rather than all buffer stocks are bad, and some generic rejection without looking at the real proposal. And I think you're looking at a copy.

MR. VERLEGER: If you get the long you don't need your buffer stock, because as we just heard the market, the private storage creates it.

MR. HAGGQUIST: Certainly. NYMEX would come here, and ICE would come here if you could

have a centralized gathering point, if there was a place to do that. Yeah.

MR. VERLEGER: I think the Kinder Morgan market is probably good enough right now because then you just go down a step.

MR. HAGGQUIST: Thank you very much.

MR. VERLEGER: Thank you.

PRESIDING MEMBER BOYD: Real quick.

MR. GOLDSTONE: I'm a little late, Commissioner Geesman. I was sitting here and I thought of a good opportunity.

PRESIDING MEMBER GEESMAN: Name for the record.

MR. GOLDSTONE: But I want to check effect. Earlier this morning --

PRESIDING MEMBER GEESMAN: Say your name Sy.

MR. GOLDSTONE: Sy Goldstone. Earlier this morning I was listening to you, the backwardation on the average is 15 cents a gallon. And I'm thinking about the schools and the state. Why can't we save a little money by buying forward. There must be something wrong with this idea. What is it?

MR. VERLEGER: There's nothing wrong

with this idea. I mean for years I guess it was the World Bank had a commodity division and they worked hard on countries to essentially hedge. And they worked on countries that are producing commodities to hedge their sales. And they worked on countries to hedge purchases. That's a great idea.

MR. GOLDSTONE: Well, I'm not hedging. I want to save money because on the average this like almost a free lunch. That's the question.

MR. VERLEGER: Sy.

MR. GOLDSTONE: Yes.

MR. VERLEGER: The only problem is I suspect more of my share of my career working for the lawyers from Mattel Gazel Shout, which is a company that decided that that was such a great thing they would offer everybody essentially 62 cent coil and free options on it. And they became so large they converted the market from backwardation to Contango.

MR. GOLDSTONE: The problem is we would influence the market.

MR. VERLEGER: No, I don't think you would. I think it's a good idea, but I think the school districts should do it because it solves a

budget problem.

MR. GOLDSTONE: That's my business. I'm going to go around the school district --

MR. VERLEGER: That's right. And you can take the profits.

MR. BRUSSTAR: One more quick one, Commissioner Boyd?

PRESIDING MEMBER BOYD: Real quick because we're going to break for one hour only.

MR. BRUSSTAR: Okay. It will just take second, but you talked about Brian Covi Energy Commissions. You talked about the impact that just talking about release of the SPR and having the market in the price of oil. We don't track heating oil out here as much as you probably do. But the Northeast Heating Oil Reserve has some very precise trigger mechanisms about it.

But I read in the paper that there was a lot of politicians talking about releasing from the heating oil reserve anyway. Could you talk about what impact that might have had on private sector inventory and prices?

MR. VERLEGER: Well, two things about, I don't know the details on the release. They didn't release it. It occurred to me today that

what we really want to do is do a graph of retail heating oil prices by week and compare that to retail gasoline prices. You turn out heating oil prices are more volatile that gasoline prices.

That heating oil is held in commercial storage, which means that, again, that commercial storage is not available for private storage. And so not only is it oil we don't use, it's going into the commercial storage facilities, so it's crowded out other oil. So it makes us even less prepared on a commercial basis to meet cold weather. I mean it's, you know, it's three strikes and you're out. And that much really out.

PRESIDING MEMBER BOYD: Dr. Verleger, I'm going to take advantage of this rare opportunity to ask you a question. The recent price spike we've had, if they had announced they were going to release from the Strategic Petroleum Reserve, would that have helped mitigate what California saw?

MR. VERLEGER: I think so. I think that -- and let me give you a short answer and a technical footnote. I think if we kept the price to $30 a barrel, and released it with the strife, the price would have stayed down. The crude cost

would have stayed down. The other refining margins, which would have been as high, maybe a little larger, but California would have saved ten or 15 cents a gallon because the world price of crude oil would have been lower.

The technical problem is that having not done that, they created a huge exposure. They've made it very difficult to release with the start of the war, because what happened is, while prices were high, a number of producing countries went to London and bought put to essentially hedge their production.

Mexico did this in November of 1990. I wrote about it in the book I did for the Institute for International Economics. They saved five billion dollars. Well, what that does is leave the financial institutions that have written those puts exposed if then the governments release Strategic Reserves and prices start to fall dramatically. We saw this in copper when Sumitomo failed. Copper prices dropped about 35 or 40 percent because the banks had to rush to hedge.

The way you hedge a put is you sell futures. And this is why Warren Buffett calls derivative weapons of mass destruction. And in

this case it is a problem. And I know that the banks that have written this, which we're looking at liabilities of one or two billion dollars a month, if prices really drop, made a plea both to Saudi Arabia and some others to kind of keep this thing quiet.

So I think because we didn't release oil in December and January, we created a situation where our hands were tied when the war started. Fortunately, everything went well. And so prices didn't spike up high. But we had a problem. And, yes. The answer is every Governor should have called the president and said, look, this is adding to our cost. This is adding to the budget deficits in our states and making problems. Thank you.

PRESIDING MEMBER BOYD: Thank you. You've indicated my advice. All right. One hour.

(Thereupon, at 1:01 p.m., the workshop was adjourned, to reconvene at 2:00 p.m., this same day.)

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AFTERNOON SESSION

2:00 p.m.

PRESIDING MEMBER BOYD: This has been so fascinating, at least to some of us that the time has been worth it. But we're going to start losing people just because the day is getting old and it is a Friday. So that puts a strain on some people. I intend to do the following: One, I intend to offer each of the Panel members up an opportunity to make a few opening remarks or what have you, or just remarks before we get to the propanel discussion.

It's our desire, as the Commission, putting this two-day symposium on, to me it's gone from a workshop to a symposium, to have people address the questions that we've provided to the extent that we can to help us make our decisions. But as I said, I want to afford everybody to say whatever it is they might want to say.

And as a courtesy to the folks on the phone, and let me tell you who's there, Drew Laughlin, who was on the phone yesterday, and who has been introduced is one individual. The other is a Mr. Dan Brusstar of NYMEX who is joining us. And you've heard NYMEX referred to quite a bit in

the in the least two day, or at least several times.

And as a courtesy to Mr. Brusstar, if he's prepared I'm going to offer you the first opportunity to make any remarks or any presentation you might want to make before we get down to our panel discussion. So if you're there, Mr. Brusstar, the floor is yours.

MR. BRUSSTAR: Okay. Great. Yeah. I'm sorry that, you know, I couldn't be there in person. But, you know, we did want to participate, you know, in your hearings, and to, you know, maybe, you know, give you some alternatives that might help you to, you know, encourage a forward market there in gasoline, and potentially other products in the California market.

And, you know, an alternative that, you know, is available is certainly NYMEX would be happy to try and, you know, promote a forward market trading through possibly listing a gasoline contract and possibly even a jet fuel contract for trading in the LA area.

And I think a couple of things that, you know, that I've noticed in California that is a

little bit different than New York Harbor, which, you know, in New York Harbor we have a futures contract for gasoline and heating oil, which have become, you know, bench marks worldwide for both gasoline and heating oil.

And the reason that I think New York Harbor works so well as far as the forward market goes is that, you know, there are a number of different types of companies that are, you know, operating in New York Harbor that include refiners, then importers, and a fair amount of, you know, speculators, or traders that also add liquidity to the market.

And I think, you know, one of the things in California that I think, you know, is a challenge as far as trying to get any liquidity in the forward market is that, you know, there probably as many participants in the oil markets that are trading on a daily basis. And I think, you know, there are ways that maybe, you know, California could look to encourage more forward market trading.

And, you know, the key to that is going to be trying to get more participants who can, you know, compete in the California market. And in

one of the things in New York Harbor, as far as the NYMEX deliveries of gasoline and heating oil, is that most of them occur at storage terminals that are owned by independent companies that lease their tankage out, you know, companies such as, you know, Kinder Morgan, and IMTT who, you know, lease tankage to third parties so that, you know, European and Asian refiners can run tankage and bring an import product.

You have a number of blenders who can rent tankage as well. You have a number of refiners who also rent tankage and participate in the New York Harbor market. So I think, you know, one of the key things is going to be getting, you know, some tankage available for third party participation.

And certainly I think, you know, there are other types of incentives that could be given to the oil industry to encourage hedging in the forward market, you know, such as certain -- certainly with the NYMEX when we open a new contract for trading, we normally offer incentives to market participants incentives, such as, you know, lowered fees for trading.

And sometimes we'll even pay companies,

you know, a payment for each trade that they put in to encourage them to trade and start to, you know, put on positions, you know, in the forward market so that, you know, each trade that's done in the futures contract in the forward market is basically a contract to buy yourself in the future. And it's setting prices for future delivery.

And one of the things that, you know, could maybe encourage, you know, some forward pricing in California would be, you know, fairly active futures contract. It could, you know, start to set prices for the future and allow companies to lock in prices for imports and allow perhaps some speculators to come in and participate as well.

So I think there's, you know, a number of factors that would have to kind of all work together. But certainly, you know, we at NYMEX would be, you know, very willing to try and help out. And certainly, you know, we've designed futures contracts already, and we have some experience there. And I think, you know, some of the factors that we don't have control over is things like, you know, third party tankage that's

available, you know, in the LA area for instance.

And that may be an area where, you know, California might be able to try and find a remedy to, you know, share a certain amount of tankage that would be available. But other than that, I mean, we're, you know, willing to try and, you know, work with you to, you know, encourage forward trading and hedging, you know, in the California market.

PRESIDING MEMBER BOYD: Okay. Well, I thank you for those remarks. You are somewhat of a disadvantage of, A, being here and possibly -- I don't know how much, if any, of the last two days you've been able to hear. But it does put you at a disadvantage in terms of catching up with where we are.

But there's been a lot of discussion of the very points that you've raised. So I appreciate you reinforcing them from the standpoint of folks at the NYMEX. I'm going to as now, Drew, are you there?

MR. LAUGHLIN: Yes.

PRESIDING MEMBER BOYD: Would you like to make some remarks? And then what I'm going to do is, since we really did you an injustice of

putting you this way instead of mixing you together, I'm just going to go back and forth and ask individuals at one end of the table to the other and work my way forward. And then we'll turn to the panel discussion that we're going to attempt to have for the rest of the afternoon. So, Drew.

MR. LAUGHLIN: First of all, I wanted to basically give you a gasoline supplier or trader's viewpoint of what I've heard of in the last two days. And also, the quality of the webcast has been exceptional. I've been able to hear very well what everybody said, even people in the back row.

PRESIDING MEMBER BOYD: Well, we'll take credit for it, but we probably owe it to the electrons out there somewhere.

MR. LAUGHLIN: I want to give a little background on myself. I've been in the gasoline trading business and blending business for about 28 years, background at Valero and I own one of the largest trading companies here in the US, privately held companies in the US until a few years ago. So I've got quite an extensive background in trading and gasoline supply.

And I've gone back and forth to California, as you know, over the last two or three years in helping quite a few clients try to figure out the supply situation in California with the MTBE phase out and supply situations over the last couple of years. I'd like to first comment on the speaker. The quality of the information today was exception. I've learned a lot. And I really have, in this particular process, and independent.

I'm not in on the Strategic Petroleum Reserve study or the SFR study. I have been involved with the participants in trying to give an independent view as what each side might see on some of these proposals. And I've learned a lot more today listening to the participants today. I believe the goal of this workshop and everything is basically not to do and SFR, but to debate the merits of an SFR.

And I think that's gone very well. I have learned a lot in this debate that's gone on over the last two days. And quite a few of the things that have come out, I've learned over, as I've said, from the participants today, the different point of view. And I want you to hear

maybe a point of view with the Gulf Coast suppliers or what non California suppliers look at, and how they look at California.

As we've gone through the debate over the last couple of years regarding MTBE we have basically brought attention to California over the last couple of years, and it has done a world of good. I don't know if you've seen over the last year or two, but things have changed.

The amount of material that is now coming to California from foreign sources that we didn't see a year ago, this was brought to their attention by the debate that has happened over the last two years regarding MTBE. But we now have (indiscernible) coming from the Far East, Alclip from the Far East, from Central and South America, products and suppliers that we hadn't seen in the past.

And this has all been caused by the information flow that's gone back and forth on a lot of these meetings. I agree very strongly with Dr. Verleger in his report this morning on a couple of issues, specifically that strategic supplies of crude oil need to be positioned in the west coast. I'd take it a little step further

though, and that is that I would like to see a mix, not just a crude oil, but of finished products on the west coast.

And the reason I say that is the west coast has a very unique problem in much that's a refinery capacity problem. And it's not just refinery capacity, but it's the quality of the complexity of your refineries that are so unique to the rest of the United States, as a matter of fact to the rest of the word.

The rest of the world has products with in their refiners that came to California. We call it cherry picking. We can go through the blend stock pool in a refinery, and in some cases find product that can come to California. And that has been what has happened over the last year or so. And I think quite a few of the participants have concluded that over a period of time that the market in California would be supplied if it is an import market.

It would not be supplied predominantly from the Gulf Coast, but it would be from foreign sources. We're seeing that develop as we speak right now. And it is those foreign sources that I think in the long run will come into the market

there and supply those particular products.

But it's that uniqueness to your market that also causes a problem. We have seen over the last couple of months that you came right to the brink I think. You were able to -- you know, prices are still high. But had there been a problem greater than what you had on the problem with BP and a couple others at the end of March, another refinery problem I think would have taken us into what we've been calling super spikes.

And this particular spike would have been the bigger problem we've ever seen. We've talked about shipping, and I can tell you right now that the shipping problems we envisioned on US flag ships was so much worse, and is so much worse, over the last six, eight weeks, that had there been an additional problem in California you would not have received any more ships.

We had jumped the freight price, which prices are freight from the Gulf Coast to the west coast already get 18 cents a gallon. And we thought that might have been the peak. That was just the beginning. But no one envisioned that we would have lost ships to military sea lift command during a war. These are the problems I guess you

never envision what really does happen in the future.

But what we envisioned was an 18 cent price spike on freight. That might have been the bottom. It could have gone to 25 or 30 cents a gallon. That's something people need to realize. That we've talked about if the time and distance is a problem, the freight price can be a problem. But realistically, we were running out of American flag tankers.

And that's a point that I cannot stress enough because if you're relying on the Gulf Coast, you know, you were getting to the max on shipping. We have always said that one or the other would be short whether it be the quality product or the US flag shipping. In this particular case the product was available, but the shipping was not.

And we got right to the max. And then at that point California was able to pick up and supply their own. And what had been moved out from foreign sources, and from the Gulf to fill the void, and those prices will hopefully come down here in the future. A couple of things, the uniqueness of California is something else we want

to talk about.

Not just uniqueness with your refineries, but your infrastructure. And this is the difference I think that Dan was talking about the way of the NYMEX, the infrastructure, for good or bad, this not a critical comment, but the infrastructure owned, particular the refiners, own quite a bit, or control quite a bit, of the infrastructure.

This makes it quite a bit different from the NYMEX, or from the New York Harbor market I should say. It makes it less liquid and less able to trade forward prices. You need to understand that a non California player is reluctant to sell or to move anything to California that is not committed to a refinery. He doesn't want to speculate on moving to something to California.

This is different than on the east coast where a player in South America or Europe, they will definitely move cargos to the New York Harbor without having a home for it. They can sometimes depend on even selling it or committing it in the market. But they will take and they will speculate, and they will take the chance.

Very few people will do that same thing.

There are few traders that will take that risk and move product to the west coast, because it isn't just that they have to find a home for it, they need to find a home for it with the California market, with the players that are in the California market. And there's some problems with that.

Quite a few of the traders, refiners don't want to divulge their sources or product. They like to protect sources, and that's very difficult to do when you sell product into a refiner. They're going to find out where it came from, how you got it and how you came about it. A lot of the players don't like this. Traders don't like that.

It's part of the business to not give up your secrets. There's a loss of margin when you have to sell to a California refinery. And of course there's also the Unocal patent, which comes into play. All of these particular things make the California market unique. And sometimes cause -- and this I guess is the point that these extreme gasoline price spikes are what I think causes the most consternation in this.

I think from what I see most of the

price spikes that are related to crude oil, I don't think that the California consumer sees it that much. They don't like the price going up, but at least it's explainable that the rest of the United States is paying a high price. It's that differential between California and the rest of the United States that seems to cause the most problems.

And even the California refiners, even though the California consumer gets hurt by a mega price spike, the California refiners get hurt also. They may make -- the ones that are having the problems will make short term problems. But in this new world, and this is very different in Houston now, corporate responsibility or negative public opinions matter. Negative stockholders' opinion really matters.

And you can look at the dead bodies in Houston streets on some of the corporates that have -- they have disregarded for stockholders and what they felt about certain things, and see what has happened to them. And this is important I think, even the refiners are not happy to see these mega price spikes. And that's why, you know, I strongly support -- and I don't want to

get lost in the details, but the concept of having reserves, whether it's crude or products, or crude and products on the west coast can stop these spikes possibly.

And I believe also that it could, and I think it should, increase liquidity. And that's where I think that it may be able to bring other parties into play. And I think that would lead to the creation of a forward market as Dan was talking about also. And in making more liquidity and more tanks available on the west coast, I think can help the market. That's it.

PRESIDING MEMBER BOYD: Okay. Thank you, Drew. I'll come to Tony, anything more you'd like to say, any comments on what's happened to date? You've got a free shot at it.

MR. HOFF: No other comments at this time.

PRESIDING MEMBER BOYD: Tony?

MR. FINIZZA: This Tony?

PRESIDING MEMBER BOYD: Yeah, this Tony. I just realized how many --

MR. FINIZZA: I know in the next few weeks or months I guess you have to write a report on this, and you're going to get the help of the

California Energy Commission staff, and everything you can read that we wrote. But you're probably not going to get our individual help because we're kind of done with the process.

So I just wanted to clarify one possible thing in how some of the calculation was done, whether it really is going to help or not, I leave that to you. And that is when I did the economic benefits, the assumption was that we would literally be able to take some of the price spike away without a reciprocal, giving it back in a sense. There was no symmetry to it.

I guess part of the thinking was that it didn't look like the behavior that we empirically could envision. And also, we recognize that refiners couldn't in fact produce below their variable cost. And they probably operated close to variable cost a lot of times anyway. And so there is an una symmetric price spike as well.

Also, we note that the retail price does rise faster than the -- I'm sorry, rises roughly the same rate as the spot pricing, but much slower on the way down. And there's an additional, I would call it, present value that is not taken into account. So of course you could add that

back in. So that basically is just a minor point. And we can debate it later or the same time.

PRESIDING MEMBER BOYD: Okay. Thank you.

MR. HERMES: I have just one comment following up Bruce said. And I'm thinking when you compare New York or the east cost or California you have to keep in mind the history of the situation, the east coast to the US. It's been a major import or products. In fact I think about 70 percent of the products are not supplied by local refining.

And it goes all the way back to the imports program when east coast terminal operators were allocated special allocations of import rights. So there's a history there that's been going on for a long time, and the infrastructure reflects it. California, up until a few years ago, almost all the supply was about local refineries. So I don't think it means there's something wrong with the market that was in a three year period.

California hasn't developed the same structure of market that New York has developed over 50 years. That's all I had comment, other

than what I said this morning.

PRESIDING MEMBER BOYD: Okay. Thank you. Thomas?

MR. GIESKES: Yeah. First of all I'd like to extend an apology to Dr. Verleger, the original author of the article (inaudible). I've never been very good at memorizing a passage, so the quick thing to do is take a photocopy. And indeed (inaudible). Having said that, when we started on this study we knew it was going to be a very controversial issue. We came up that we thought was an original idea, which we knew was going to trigger an awful lot of discussion.

And tin the critiques that we've heard of these past couple of days, they are somewhat inconsistent sometimes. I mean we've heard the critique of Bob Hermes that this type of reserve has not been tried before. Dr. Verleger saying, well, this has been done all over the place and it's never worked, and there will be no savings. The price spikes and the price troughs are symmetrical and, therefore, if you just leverage it out there will be no savings.

We've heard from others that there will be likely be refinery closures because you take

away all this money. We've heard that the market is responding fortunately to the shortage of tankage, and we've heard from others that there is no shortage of tankage, and inventories here are equal to the rest of the United States.

So buying these highly complex and controversial issues, and we knew we were heading for some serious critiquing. And I'd like to focus on the points of agreement. And I think where we all agree is that the markets are structurally backwadated. That backwardation leads to lower of entries. And the lower of entries are aggravated by fundamentally both storage capacity (inaudible).

The low storage can add to volatility. There are other factors that contribute to volatility in a market, but lower storage is certainly one of them. I think are all in agreement that local supply lacks the development and the appetite of California for gasoline. So the nation state becomes increasingly import dependent.

And going down the list, we are very glad to see commercial storage operators stepping up to the plate. See changes in the commercial

landscape in both storage where they are able to build storage on shelter term contracts. We wish (inaudible) in LA as well as in the Bay. Maybe that will happen sometime in the future. So what else is required for stability becomes now the issue.

And that is of course if we lack stability, and some of us maybe don't like that. But what to do against that extreme price volatility, the really severe prolonged price spikes, the vulnerability to others is etcetera. And quite frankly, the reserve, as we propose it, still have a lot of work to do on this. We realize that. A lot of, like you said, Bob, detail.

But quite frankly I think there's more work to be done here. We've heard some suggestions from the NYMEX speaker on how they might after all be ways to create that of liquidity that is needed. But I think that regardless of where we go, my personal opinion, is still that something needs to be done, or something needs to change, either my market forces or by stimulation.

There is a significant role for the CEC

in helping to address some of the infrastructure problems in the reports. And if nothing else came out of this study then to trigger this discussion, I've always stated that the best prophecy is a self-unfulfilling prophecy where sort of being the messenger of doom triggers the necessary action, and the industry steps in and things get done. So that is my sincere hope. Thank you.

PRESIDING MEMBER BOYD: Thank you. Professor Williams?

DR. WILLIAMS: I would like to add a general point. I think it's been helpful in all of this to try to quantify some of the impediments. What does that mean in cents per gallon on a typical transaction. And that would be the helpful way to prioritize some things. Of course some can't be changed at all, even if they're good one.

But it's a good way to think of some of these impediments. How much does it really cost extra to take a cargo into LA versus San Francisco, and what is that doing to the relative balance of those two markets. I think we ought to be able to quantify that. And that would help us get through some of the discussion of what best to

do.

PRESIDING MEMBER BOYD: Okay. Greg?

MR. HAGGQUIST: Yes, sir. Gregg Haggquist. I thought that we do have to quantify it, but we also have to change the interior image in our minds, the visual image of what this really is, the flow of the oil and the flow of the price. And the frustration I was confronting was all of the rebuttals were talking about something other what we had proposed.

And it reminded me of this famous most best selling art book, Drawing from the Left Side of Brain. You might have seen that book out there. What it told you, it teaches you, is that you ask any average adult to draw a picture or a fire truck, or a tree, or a dog. Here she will draw the fire truck, tree or a dog that he drew when he was 12, or she was 12 years old.

That imagine takes over and you stop looking at the world. You stop looking with fresh eyes. So if someone says dog that's what you draw. Someone says Strategic Fuel Reserve government intervention, that's what enters your mind. So to undo that you have to go through certain exercises. You have to turn things upside

down and draw them. You have to look at spaces between objects.

So all I wanted to do here, and we want to do, is make sure that what we were really presenting was nothing like anything is ever presented before. California does not represent -- is not similar to the other markets that Dr. Verleger has pointed to. This false equivalency needs to be replaced by actual visualization of what the real situation is.

And I think we've gone a long way in that direction. So that's all I need to say right now.

PRESIDING MEMBER BOYD: Dr. Verleger.

MR. VERLEGER: I'll stay silent.

PRESIDING MEMBER BOYD: You're going to stay silent. Okay. Dave?

MR. HACKETT: I think that it's important to us, it's important to this team, that out of this exercise comes forward progress on these issues. Frankly, we reject a notion that the market is not broken. I don't believe that. I don't believe that it's an issue of competition or some hidden kind of thing.

I think it wholly comes back at

plumbing, that it's hard to get into the market. Refiners don't make enough and the like. And so to me the most important issue here is how do we, you know, unblock the pipes?

PRESIDING MEMBER BOYD: Okay. For the agenda, the next thing we were going to do is address the questions that everybody was provided earlier, even before we started this two day session. The problem I'm having is I look at the questions and I'm going to rely somewhat on the staff to prod me where I might be deficient. But it does seem to me that a lot of what we've done in the last two days is in effect addressed these questions.

But I'm going to leave it to each and every one of you to jump in grab any one of these questions that you think maybe we haven't touched enough and help us with what many of you said is our problem with the long run is dealing with all that we've heard over the last two days and try to make recommendations to the policy makers of the state.

But in light of that, I'm going to inject a couple of additional questions that people like Commissioner Geesman, and policy

makers here are constantly assaulted with that I don't feel like I'm going to walk away from this extremely interesting couple of days with the ability to answer.

And the first question is, and this is the typical question the media will ask, and that is why the big difference in this last situation here in California between the prices in California and the rest of the country? And that was put on the screen in one of the early presentations yesterday. There was a big delta between.

And we've talked about all the problems of California, and this agency has analyzed the daylights out of the last incident at the request of the Governor in a very short period of time admittedly and said, you know, we can't find -- honestly we can't find any conspiracy in price fixing and criminal activity. It is the complications of what's gone on in the world, and the complications of the California market.

But even we are stressed to try to understand this big delta. The second phenomenon of this last price spike, and you've got to remember the context for this panel discussion

these past two days are the 1999 price spikes. We're trying to still deal with them, deal with what just happened recently.

But I have none of the expertise that you have, but I have been associated with transportation fuels for more than 25 years wearing that regulatory hat for those many years, and being implicated carb I and II and clean diesel, and what have you. And, you know, I've developed a little favorite saying that I saw almost parroted back to me in the press recently is when prices do rocket up, they come down by parachutes.

Somebody here said like a feather. And this time some of us observed, and one of you said, that this has been a little atypical. To me they went up a lot quicker, the prices that the 34 plus million people see, went up a lot quicker than historically we saw. And we don't understand, I don't understand that. And they are coming down, and I think this was plugged yesterday, a lot slower.

And some of us would like some help with that in order to deal with the public presses large while we deal with the bigger question also

that was the whole thrust of the last two days. So I'll add that to the list of questions and just throw the floor open and ask anybody to jump in at anytime with any kind of comments they might want to make on the questions we've left here, and anything that's not been answered. And any other comments you might want to add. So the floor is open.

MR. VERLEGER: Can I start with the question you had there? And I think perhaps one of the answers is is that it sounds odd, but our regulators have been too flexible. You've not heard that for a long time.

PRESIDING MEMBER BOYD: I don't think I've ever heard it.

MR. VERLEGER: But we have two kinds of gasoline being sold in California right now, ethanol type gasoline and MTBE gasoline. And this happened once before in Michigan or in the midwest, and the FTC did a very long study on what caused the price increase in the midwest gasoline survey. I forget. You find it on out website. But the analogy I always tell, and perhaps Jeff Williams can -- I know he can do the math.

I've never been able to do it. But if

you think of an ice cream parlor, if they're just selling one variety of ice cream you've lots of -- and you got one for six tubs, you're much less likely to run out because you're selling six types of gasoline and you can't replace one for another. I know there's a mathematical problem.

But right now we are running a state where we don't have one kind of gasoline. We have a -- this year some of refineries are selling gasoline with MTBE and some of the gas refineries are selling gas with ethanol. And as I recall, it's been years since I've taught the subject. It means for the same study state, you need actually a higher level of inventory because you have two -- and I suspect it has something to do with the (indiscernible) than if you had just a single kind of gasoline.

And I think -- and I haven't heard anybody explain that, but I think that is complicating the logistics. And that is one explanation why we're seeing a slower responding market this time. Now, that says it won't happen next year because supposedly everybody is on ethanol.

MR. HACKETT: And let me chime in, and

we've been concerned about two kinds of California gasoline all along. But it's compounded because, you know, of course this is a regional supply area, not just a state supply area. And refineries not only supply California, but Arizona and Nevada. And I think that you can look to the Phoenix gasoline price situation in the March time frame to learn some interesting things about having (inaudible) supply from Texas and New Mexico was constrained to refinery problems.

And the refineries in Los Angeles had a very hard time picking up the slack because, in our opinion, they had their systems lined out to supply the normal amount and not the extra amount that Phoenix suddenly required because of a problem on the other side.

MR. FINIZZA: I was just thinking that what Phil said is a good idea, but I think it has to -- and I don't know the answer to be honest with you. I think it has to a little further, and that is much of the difference that you're complaining about is in the retail end, not in the wholesale end, is that correct? It's a fact that the retail has stayed up higher.

And does the two types of gasoline

argument work once you've passed the wholesale level? I suppose it could. Well, but I think you need a more complete answer. I think you're on the right track.

MR. HAGGQUIST: And I agree with both of you, what Dr. Verleger is saying, two doctors, that we explain the wholesale. The retail maybe comparable to what happened when I first came into this movie a couple of years ago, trying to bring cargos in here. At that time we had another spike, 2001, was it, the price spike?

And the complaint we were hearing then was from the independent retailers because they were getting caught in an inversion. The independent retailers could not pay this rapidly escalating wholesale price because the street price, the mandated street price, was not rising fast enough. And they either had to put yellow tape and close down, or sell out their gas stations.

And we're on record on all of that. Of course Tom O'Malley came out and said the heck with this, I'm raising the street and it went directly to $2. And when you have a leader people follow. And the others in the streets followed.

That maybe have set a paradigm perhaps, perhaps. Because this time around we've had a year and we've seen it.

Mr. Hermes has shown us, this was last year, has not been very profitable, has not been a good year for the refineries. And one of the Chairmans stood up in the public forum in the IPE and said our downstream profits are totally unacceptable. So maybe here's the opportunity, here it goes. It goes up. Why should it come down? Why not float down once it has flown up?

We can give an anatomy of why it went up at wholesale. It has to do with the two kinds of gasoline, the tightness of the pipeline market, and the trouble covering pipeline tenders, and the lack of imports. But once it gets to the street, as I said, starting off yesterday morning, that's a whole new market out there.

They watch each other. They don't care what's going on in Saudi Arabia or the NYMEX so much. They're only going to come down when the guy next door comes down, down the street. So it floats down. Okay.

MR. LAUGHLIN: This is Drew Laughlin. I want to add to that. This is a unique spike in

that the spot price this time is not the culprit. In fact, the arbitrage window between the Gulf Coast and the west coast is closed by probably over a dime. In other words, to understand that if you transported material from the Gulf Coast to the west coast today you would lose a dime.

And, you know, you wouldn't do that. So we don't have -- you have an excess supply actually of product out there. As a matter of fact, one piece of blend stock even this morning were sold to stress at an unbelievable price in LA. I hadn't seen it before, 50,000 barrels just dumped in the market because there was nowhere to go.

So you have a unique situation this time where this is not really a refinery supply problem. This is not a, you know, there's no way you can really say this even the gasoline having two different grades. I think that the grades -- they follow the leader. There is no leader. There is no reason. If the guy across the street doesn't drop his price you don't either.

I mean that's how it works in the market. And in this particular case it's going to be very slow to come down because you have last

year was not a great year. So I think they feel that since the prices in crude are up, there's problems in the world, and the consuming public somewhat understand they can keep the prices higher longer.

PRESIDING MEMBER BOYD: Each of those helps a little bit.

MR. HACKETT: Jim, I think that, from my perspective -- this is Dave Hackett. The market got jerked up really high for a combination of things. We talked about it before. Big refinery went in and turned around, and couldn't come back. Some of the smaller refineries had problems. There were at least some friction caused by trying to blend the new gasoline and the like.

And then as participants were bringing in cargos to try to alleviate this situation drawn in by the volatility, and properly so, or actually because of their arrival time it probably had been scheduled way in advance. But when they showed up we were given reports that there was congested, and so ships couldn't unload. But what had happened is that the cargo had been sold.

The cargo had been sold. It had the pump. But the ship didn't get unloaded. Then the

guy, the trader, or whoever it was, had sold those barrels, all of a sudden was short in the pump market. It got squeezed. That's called a short squeeze. And, you know, Haggquist can describe that better than I can.

But you can see, if you look at the daily price rises, you can see as much as 17 cent jump in one day. And so that certainly describes the extent of the pain for whoever was that short just had to spend an awful lot of money to cover it. And I think in this particular is because ships couldn't get unloaded. Maybe that was an operating problem.

Maybe it was just, you know, the physical constraints. But that's how it got so high is getting the barrels in the market, and then the short squeezes that result of it. And that takes retail up and retail floats down because, you know, people don't lower price until the guy across the street does.

MR. HERMES: I just wanted to comment that major changeover and specifications have occurred in the past it's not been that unusual, as I recall, when carb gasoline was first introduced it was a pretty big spike in the

market. And this is a pretty big change of phasing out. Everybody didn't phase out, and that probably compounded the problem.

But switching from bringing in ethanol from plants in the US Mid West from importing MTBE and all the infrastructure tankages goes with that, plus refiners that are making the ethanol blend, had to adjust their operations. I think you were into turnarounds. That was probably one of the things they were doing because some high vapor pressure components had to be rejected out of the gasoline pool.

And I don't know the particulars of why turnarounds don't get finished, don't schedule the fact that they were adjusting operations for that, as well as doing the normal things you do, and turnaround could be a factor in it, until you get some specifics on it of course.

PRESIDING MEMBER BOYD: I appreciate all that. It just makes the long list called the little things even longer than it's ever been probably in history here in California. The MTBE ethanol switch, I mean a lot of people voluntarily started a lot earlier, which scared us a little bit then after a while. It didn't seem to me be

probably a positive, not a negative, rather than having them all do it at once.

I think more than 80 percent of the gas was ethanol blended before we even hit turnaround time. Obviously the difference between winter and summer gas caused some people some problems. We've heard all the stories of multiple reblendings, and the San Diego story. I walked out on the explanation of it yesterday to tend to changing another appointment.

So I don't know if it got explained or not, but my understanding of it wasn't that big of deal. It was for Arco who had to pump it out. They fixed it right on the spot, and they also offered their premium at regular price, etcetera. So it's just this laundry list of issues I've ever seen. And I guess we can attribute to that. But boy that's really tough to explain to the public.

MR. FINIZZA: You haven't blamed the consumer too. You can always add that one in there. We've met the enemy and they are us, because, you know, as long as we -- I don't know the search cost are too high, or what have you, we continue to consume gasoline at those high prices. We only complain about it. We don't stop pumping.

PRESIDING MEMBER BOYD: There was little hiccup in the SUV market here, I noticed, but that's true.

MR. WILLIAMS: Can I add yet another --

PRESIDING MEMBER BOYD: Please.

MR. WILLIAMS: -- to the list. The points made are likely, but you don't seem to be thinking about inventories all of a sudden, and that was a relevant thing to look at here. Imagine there's a shock, inventories get pulled down a lot, prices go up to balance the market, and to be crude about it, you've got to build up those inventories again.

Isn't that going to mean that prices sort of only slowly fall back to some long run average? In fact, in inventory markets you might naturally see this type of asymmetry and speed. I'm not saying it's not all the other reasons.

PRESIDING MEMBER BOYD: It's an implicit assumption you're telling me is a direct analog with the natural gas situation we're experiencing right now, storage and price?

MR. GIESKES: And of course in the case the asymmetry was only refill rather than on the wholesale. So I think the inventory element of

wholesale, but you raise a very valid point there, is that the crisis this time occurred at inventory levels, which were well above the previously observed minimum.

This time was also two million barrels more than inventory when things began to get really tight, which is indicative of what the six barrels of ice cream that Dr. Verleger mentioned. All these different components suddenly do make it difficult for refiners to manage (inaudible).

MR. STEVENSON: Dwight Stevenson. I'd like to come back to the six barrels and just say that there really are two. And the barrel -- well, I'll lose the analogy anyway. But the MTBE gas has continued to be a higher spot price. And that apparently is a shortage, and when you look at who's selling what kind of gas, independent, Rotten Robbie's, etcetera, or sell the MTBE gas, and if they don't have enough gas to push out of the market, it pushes the price down, which they like to do, then the guy across isn't going to follow.

So, yeah, we're making both kinds and we try to respond the best we can. But I think I'm going to agree for the first time with Dave on

this and it's some plumbing issue.

PRESIDING MEMBER BOYD: He's just going along with all of us.

MR. STEVENSON: But, yeah, there is, at the risk of adding some more work to us, that I might ask, direct you and the staff, to look at that issue of, you know, is there enough MTBE gas getting in the hands of those independent retailers. We're doing our best at our refinery to try to get as much gasoline down to Los Angeles that we can, but, you know, plumbing, that includes ships and that, is someone of a limit.

MR. HACKETT: Thanks, Dwight. And the marketers aren't here. I called them and said you guys need to come, and clearly they were busy with something more important. But one of the concerns, and I'll say something for them, because a concern that they've had that I've shared, and that is that retailers can't switch back and forth between the two grades. And that's because air quality regulators calculate that that will create more pollution.

I'm not sure that that's true, but I think to the extent that these folks could switch back and forth, that that would help to bring

prices down quicker.

PRESIDING MEMBER BOYD: I see ARB has left the room too.

MR. HAGGQUIST: There's also another matter of optics here. Who's keeping this margin? As Drew Laughlin said, there's distress cargos out there, there's cheap gasoline, 93 cents, you know, but yet we're just rifting on down. You know, there's the independent retailer, and then there's the dealers that are branded. And this whole business of branded prices, tank prices, are much higher.

So the branded dealers are telling us that they're making any more margin than they ever do, and that's the way their contracts read. Whether the market is up or down, they're pretty consistent. So this differential between the MTBE gasoline independent refiners that we know about, and the branded and integrated companies is quite different.

And I'm sure that's going to be focused on. That wasn't the purpose of our study. We've been looking at the wholesale market, how to get supply here. The same thing happened in Hawaii. Even you get supply there, it doesn't mean it's

going to get to the street at those prices.

PRESIDING MEMBER BOYD: Well, I want to just indicate to the credit of the staff here, I know they've been very closely following the shrinking MTBE gasoline supply situation, and have recognized, not that we can do anything about it, as an agency. But at least we recognize that as one of the many, many factors that have been keeping some of them and some of us awake at night as we slowly merge down this path.

This is a California workshop, not an Arizona workshop. But I can only observe. I wouldn't want to be living in Arizona here pretty soon. But that's just a side comment, unless they quickly adopt California gas.

MR. HACKETT: Get Leigh to check his e-mail.

PRESIDING MEMBER BOYD: Okay. I invite people in the audience to ask questions of these folks. I particular solicit the staff of the CDC to ask any questions. You're not going to have this opportunity offered you much more. And we all are going to have to write this all up one of these times. So this is a workshop, have at it. Thank you, Scott. You know, you've got a big

responsibility, a big stake.

MR. MATTHEWS: I just can't resist, because I know where the assignment comes. So I would like to hear everyone's individual recommendation about what the Sate of California to do about volatility. That's the problem. And even though, you know, my old economics say a small utility has a lot of benefits from it, from a politicians point of view, and from the people who we report to, and of course we get all the e-mails that we have to respond to, they want to see volatility reduced, even if that means that there might be a higher average price.

Even if that means we have to spend some money in a very desperate time, although we want to be very wise about spending money, and certainly try to convince them. So I'd like to hear what you think our report ought to be saying about what the recommendation is to reduce price volatility gasoline in California.

MR. WILLIAMS: I'd first of all say I don't think they're riding you to say that just want the average at a very high price. I think what they want to say that they want it always at a low price, and why now and then they have to pay

for a very high price. And if you make that point clear, maybe they won't be quite political impetus to do something about this problem.

PRESIDING MEMBER BOYD: Are you saying that it's somebody's obligation to explain to the public, maybe the industries, how the industry works? The only trouble is, and I mean this is kind of a light moment, I hope, a light moment, and this is not meant to be a criticism of the industry, but I have commented to them through the years and more than once, they aren't making their case very well.

They make it tougher on us to try to explain it. Number two, I don't know, I mean just like mother nature and murphy always combine together at the times when some of these turnarounds or changeovers are occurring to make it really bad for us, usually at the height of these spikes their quarterly earnings show up in the financial pages.

And for some people they're pretty good, you know, seemingly, relatively. The public doesn't understand, well, gee, we only made five percent or two or three percent. They see this gross amount of money there. And while these

people are making money hand over fist, this is all -- nor do they understand the lack of total vertical integration and etcetera, etcetera.

But it's really hard to convince the electric to public, and they beat all of us up over situations like this.

MR. HACKETT: Gentlemen, let me throw one out that Scott asked about real quick. And this is several have discussed. But from my prospective this has all been a matter of supply, how to supply this market adequately so you don't get 17 cent short squeezes that drive up retail, or take a long time to float down. Okay. One is why not blend ten percent ethanol.

Now, I'm on record as saying that I think that blending gas with ethanol in the summer time in a place like California is a risky policy, because what it does is it dramatically shortens supply. That's why it's risky. So the reason refiners don't blend ten percent ethanol is because predictive model won't permit it. You can't make gasoline that matches a particular volatile at ten percent ethyl. It doesn't work.

You'd have to have the minus (inaudible). So what that means is the predictive

model has to go get relooked at. Now, and predictive model has been around a while, ten years or something like that. And so if the predictive models is relooked at perhaps, based on new assumptions.

And I'm not sure how much money that will cost. But that's a weight increase supply. You know, there's a supply in here that based on predictive model that's one way to increase it.

PRESIDING MEMBER BOYD: Why stop at ten? There's 150,000 FFE's running around out there that get CAFE credits that burn straight gasoline. And I'm getting to far afield here. Joe.

MR. SPARANO: I believe you challenge the industry once again. You've been very good at that over the last two days. One thing I might --

PRESIDING MEMBER BOYD: More like 25 years, Joe.

MR. SPARANO: I can't go reinvent history. I can only go forward from this moment, which I intend to do --

PRESIDING MEMBER BOYD: Just ask Gina.

MR. SPARANO: -- as a representative. Pardon me?

PRESIDING MEMBER BOYD: Just ask Gina.

MR. SPARANO: As a representative of a foreign industry I do intend to go forward. But one of the things that was revealing and of interest to me was a phrase one of the presenters used this morning, and you can't have it both ways. I think we'd all like it both ways. And you can pick your topic, but you can't have it both ways.

I'm going to join the I love everybody club too, because one of the things Dave just said is very pertinent. We have certain rules and regulations that require changes that sometimes work against the normal good of the public. When you extract material from the gasoline pool purposely to meet another objective, you're not going to help the gasoline pool.

And in that case you don't help the supply situation. We had some commentary yesterday about rule 1178. When you force refiners to put domes on tanks as opposed to perhaps coming up with a more creative way that doesn't cost as much, and more importantly take that equipment out of service when it can least afford to be out of service.

Then I think maybe the objectives are

mixed, which she had going in the wrong direction. So I empathize with the public when people get upset that the price goes up quickly, that they perceive it goes down slower than it goes up. I don't know that the statistics would bear that out in either every case or of many cases. What we're seeing now is -- I don't know if we're seeing the same data, but you've certainly had opportunity to present yours.

MR. VERLEGER: There's good literature.

MR. FINIZZA: Yeah. It's not a conspiracy.

MR. SPARANO: There's no conspiracy, but there's good academic literature.

MR. FINIZZA: No, we just wanted to put you at ease.

MR. SPARANO: You're never in a good spot when you're arguing with a economist. I'm not going to do that. I'm just a poor dumb old engineer. Sorry. And the point I'm trying to make, Jim and John, is that, as we talked about yesterday, there are lots of things we can try to jointly bring to those parties that make the laws. Legislature has a responsibility, the regulatory bodies have a responsibility to look not only at

the cause of the day, but also the perhaps unintended consequences of solving the cause or the problem of the day.

And I think I'm perfectly happy, and I've already offered, the Governor's staff to sit down and explain the business. I can probably do that. I may not be able to explain economics 101, but I could probably explain the business. So I think what you find is perhaps an industry response, as you said yesterday, you might not have been accustomed to.

But I think we understand it's in our best interest to make sure that the public has at least some understanding. And we're talking about even going back into the school system to the extent we're allowed to help educate people so that at least there's some common understanding.

I think one of the weakest spots that we're all looking at is that there's a conflict of objectives. And that conflict is part of what leaves to some of the problems that we've been talking about over these last two days.

MR. VERLEGER: Commissioner Boyd, can I talk for a second?

PRESIDING MEMBER BOYD: Sure.

MR. VERLEGER: I was invited to testify before Senator Levin last year on why the gasoline spikes. And I got a voice mail today from somebody who wanted me to come back to Washington again, and I erased it. And I have the temerity to tell Senator Levin, he's still been very nice to me, that, look, if you look at economics, if you push -- if you creative incentives for demand increase rapidly, and you restrain supply as demand gets close to capacity, especially since (indiscernible), you're much more likely to get price spikes for the growing demand.

And what we have done in this society nationwide, is allow loopholes in the CAFE standards. So we've got all SUVs. This is not a judgment on it. It's just a fact. And so the fuel economy is going down, a number of cars are going up. And nationwide, not just in California, we have limited the growth, the expansion of funding capacity.

Now, if you contrast this to Europe, and Europe had a tax incentive for diesels so that if you go to France or almost any country, diesel fuel is a lot less expensive. So suddenly there are a lot fewer good cars that use gasoline, and

there's more a surplus of gasoline. And by golly, now the price is also higher, but I have yet to see in following all the European Press what example recently of price spike in gasoline.

I think I've seen a couple in diesel. But in some sense, and this is more than your purview, but it is the fact that we are -- Detroit is pushing on the demand side with all of the SUVs and the economic growth. And as Joe -- most people will say, but this is nationwide, we just haven't had the ability to expand capacity very much. And it's a natural consequence.

MR. FINIZZA: Jim, could I respond to his last point or do we want to --

PRESIDING MEMBER BOYD: Sure.

MR. FINIZZA: I think your idea of education is the way to go. But, you know, we've all been in the business for 30 years, can hardly understand ourselves.

MR. SPARANO: It's generational Tony, and that's the problem.

MR. FINIZZA: Yeah.

Mr. SPARANO: It doesn't take a month to fix what's been wrong for 30 years.

MR. FINIZZA: The point I want to make

is that thanks to an organization that at one point I was president of, the California Council on Economic Education, every high school student in this state, as a condition of graduating, has to learn not only about government, but about economics.

I wonder if an objective, little lesson plan, for what makes gasoline prices go up and down so that our high school students can understand it, I think would be welcomed. I don't know if could be done. But it would certainly be worth a try. I've seen some of the curriculum for the high school students. Unfortunately, the teachers are not trained in economics because many of them didn't know about this mandate in time.

So they forgot to take economics when they were in college. So anything would help them. And if it's a lesson plan, I know the Commission has some literature, but I feel it may not be appropriate for high school students.

MR. SPARANO: We have a program, I guess I'd call it a pilot program, and maybe some of my fellow WSPA members could comment on this, but I understand we have a program in the valley area that actually invites teachers to a several day

seminar, trains them in petroleum, takes them to refineries in the valley to production and fields, and gives them tours so that there's at least an elemental understanding of what is going on.

And my commentary told me about getting out to the schools while it would attempt to attack it at the high school level where there's perhaps an ability to understand those economics. I'd like to go further back. This society has so many complexities to deal with that the earlier we help children get more knowledge, I think the better off we'll be. And I mean that's really philosophical.

But the point I think should not be missed. There are a lot of things that we can help teach. And there are a lot of areas where if we had just a minimum amount of teaching go forward, there might be less tendency for the public to be as upset in certain circumstances. And everybody may always be upset if the price of gasoline goes to X cents a gallon. I don't know.

But I think there are ways that we can help limit that, and limit the damage it does when you all get 400 e-mails and calls from various other governmental bodies about explaining to them

why the prices has gone up when you don't know. And plus I want to reiterate my willingness to help in that regard. I think industry has the tools and I'm prepared to bring them to you.

PRESIDING MEMBER BOYD: Thank you. Commissioner Geesman, I think you were trying to get --

PRESIDING MEMBER GEESMAN: Well, I was going to say that my perception is that the public puts a lot of pressure on government, and at least, you know, the terms of the elected officials that are in Sacramento now. I don't think there's much pressure to roll back or relax environment standards. I think if anything, the pressure is to tighten those up and error on the side of being too tight, and figuring out that the forces of economic growth will figure out a rational way to proceed, even in the fact of a tighter environment requirement.

The area though that I think that you've got the attention of the executive branch, and I can't really speak for legislative branch at all, but the public I believe is pretty intolerant of circular, stupid, redundant permit processes that do not yield rational results, or do not take into

account macro considerations.

And if there is an opportunity here I think that is that we figure out a way in which to streamline the way in which society goes about trying to fix the plumbing to provide for the future plumbing. Because I think from the standpoint of state government, there's a very strong interest in trying to provide an environment where the risk is you guys will all over invest in surplus capacity.

I think that would be beneficial for the consumer in the long run. Dr. Verleger might disagree with that, but I think as a state policy we'd like to see a more rational permit process.

MR. SPARANO: I think, please, if you for one moment thought that the comments meant that we should not be as aggressive on the environmental side then I have been misunderstood. That's hardly the case. What I mean is while we go forward with those types of mandates and this industry has responded to the tune of billions of dollars to meet those requirements, that we at least educate the public so they understand that there is in fact -- there has been a tradeoff.

The luxury of going out and getting any

kind of gasoline you want, anywhere you want, at any vapor pressure doesn't exist. And for you to respond to that situation requires certain tightening of supply. That's what has occurred. And I think if we can help push the education more in that direction we will have done everyone a service without taking one inch backward on environment.

PRESIDING MEMBER BOYD: I would say there's precedent for that. It's certainly a good suggestion, when carb II, I mean the most monumental of all changes occurred there was huge cooperation, education. The publicly has consistently said in one of its highest ranking needs is a clean environment, air quality, youth is at the top of the list. And they've exhibit for years in purchasing cars from Detroit that they pay more for a clean car for California, etcetera, etcetera.

And it was pretty well explained to them one the two sides of the issue narrowed the price cap from 50 cents a gallon to maybe less than ten cents a gallon that it was going to cost maybe that much to have clean gasoline, and they accepted that. I think this latest spike is the

product of so many weird things that people don't understand it.

I mean the MTBE ethanol change is not a regulatory change that anybody wanted. You know, we all fell into that pool together. The state didn't mandate MTBE. It said -- and the federal government clubbed us into saying you had to have so much oxygenate, and the oxygenate of choice was MTBE. And let me assure you everybody in the world told it was safe and good stuff, everybody.

And it hit everybody on the outside and we're all having to suffer through that. Frankly, I've always said if my friends in the water board business had gotten all this underground storage tanks fixed long before they did, this may have never occurred. So this is just the public rises up and smites down many a good thing on occasion.

And we're all stuck with that one. But, you know, in California it's been predicated,I guess the fourth generation in me is coming out here, a proud Californian. I mean the golden state and I want to keep trying from becoming the late crepe golden state. Predicated, you know, a lot of it is success on being at the cutting edge, investing in infrastructure, providing an

extraordinary quality of life to encourage all the workers to work hard and do all that we've gained here.

And we're still trying to do that. So we will keep pushing the envelope in all areas. But I think we've heard here in the last couple of days there's a lot of things that we can correct if we work together on. I think Commissioner Geesman has really nailed one that tends to frustrate people a lot. And there's others I'm sure we can agree to work on while we disagree on a host of other things.

MR. VERLEGER: I have a question. Didn't in the case of power plant siding, when that became a bottleneck, didn't you accelerate that so that essentially --

PRESIDING MEMBER BOYD: Yes, we did. And yesterday you may recall that when Mr. Sparano reported refinery capacity is a problem and we need to grow refinery capacity, I took the opportunity not to be hard on him, but to point out that that was the first time I've heard in public revelation by the industry that here in California, that that really was a major issue.

Because they've been invited on more one

occasion to make a big enough issue of it such that it could be addressed on that kind of scale. I was able to say that government is capable of responding to emergencies. Unfortunately, we wait for emergencies, etcetera, etcetera. And for whatever reason, it's not criticism, the industry has not chosen until just now to say that that really is a major thing we'd like to address.

I just presumed lack of responsement that at that point in time everybody was comfortable with the market, tight as it was everybody was comfortable with it, with refinery expansion, or so exasperated by the lack of success that people have had, they didn't want to ask anymore. I don't know.

But that's on the laundry list of things that I think we need -- there's a joint understanding we need to address.

MR. LANZA: Yes, I'm Robert Lanza with ICF Consulting. I wanted to follow up with some of your comments concerning the permitting process and permit barriers with respect to environment standards. I wanted to point out that our recommendations in our report with respect to permitting do not in anyway address the underlying

environment standards themselves.

What we did is we looked at the process by which you achieve the same result that you would achieve with a more efficient process, not to the extent that any of those environment standards would be changed while the process getting to those standards would change. So barriers to expansion and storage capacity, and barriers to expansion of a refinery capacity on the permitting side are not that much different.

And if the refiners are talking about the need for capacity, and on the other side we're talking about the need for storage capacity, those permitting issues with respect to efficiency would need to be addressed in either case in order to facilitate those kind of changes.

PRESIDING MEMBER BOYD: I appreciate that. And never took -- your preside person never took from your presentation any questioning of the environment standard.

PRESIDING MEMBER GEESMAN: Nor did I.

MR. LANZA: No, we explicitly went towards the process. The other thing that was mentioned on a couple of occasions on the panel was the power plant program and how those

permitting processes differ in some sense from what you would use for a storage facility or for a refinery.

The application of a uniformed permit program for storage facilities and for refinery expansions, of the refinery capacity, would also help the process of getting some of those on line in a more timely manner.

MR. HACKETT: Robert, when I listen to your report I think I heard you say that you looked at the regulatory process and how all that flowed. But you didn't get into -- you didn't report to us in great deal about the appeals process, other than to note that there seem to be a higher degree of uncertainty and risk associated with the total appeals process, but even above the regulatory flow, is that correct?

MR. LANZA: Yes. That's certainly true. Our mandate in putting the report together was to look at the whole process. The problem on the judicial side is that we can't necessarily come in with recommendations that are within the scope of what the Commission can do, or within the scope of what the regulators can do. That is more a judicial process that perhaps needs to be

addressed in another venue.

Meaning the Air Resources Board and local governments, etcetera cannot necessarily effect the appeals process to the same extent that they could effect the process for determining when a permit application is complete, or determining what the process is for issuing a condition of use permit for example.

MR. HACKETT: So, Robert, is your firm going to recommend to Scott when he's writing his report that somebody that understands this stuff ought to be looking at the appeals end of it as well?

MR. LANZA: Yes. We put that as a conclusion in our report that the appeals process certainly needs to be looked at, both with respect to the fact in some cases applicants have told us that the stake holders are coming in with multiple appeals. Where they come in, they appeal with respect to one issue. That round of appeals goes forward. And then at the end of that they'll come back in with another issue.

In order to streamline that process maybe you want a situation where all the stake holders get together, come in, do the appeals

process with all the issues that are within the scope so that you don't have a whole appeals process going forward, and then after that appeals process ends another appeals process begins.

The other thing that is potentially useful is to set boundaries with respect to the appeals process of what is and is not within the scope of what can be brought in, meaning the federal side on the NEPA process for environmental impact statements. You can't bring things into the appeals process that are speculative because you have to have some basis for saying that we'll have this particular effect or that particular effect.

If you're just speculating that something may occur, there are boundaries as to what you can put into the appeals process and what you cannot. So that would certainly be something that could be investigated. Thank you.

PRESIDING MEMBER BOYD: Anybody else out there have any comments, questions, want to take this unique opportunity to direct to the group?

MR. GIESKES: Well maybe just one more suggestion for Scott when the Commission report is prepared. Originally there was the pipeline

projects as well. When we looked at the construction we, unfortunately, could not add on to the sort inland infrastructure projects that are out there. The Longhorn pipeline project is still struggling, can't find financing.

Could be an additional supply at least of (indiscernible), is not readily available in the Gulf. That would address the issuing of Jones Act vessels. It still is, in my opinion, a pipeline project. But they just can't get the commercial traction and the financing to literally complete those last models.

MR. HACKETT: Thank you for that. Kinder Morgan is and FERC for an expansion from El Paso to Phoenix and Tucson. I don't know, I think we had recommended that California support that expansion, but I don't know that the FERC has heard California do that, provide that support.

MR. GIESKES: Yeah.

MR. HACKETT: I haven't asked anybody in California, but I asked Arizona and I asked Kinder Morgan, or maybe it was Longhorn. And they all said, gee, no, California has been kind of quiet on that.

MR. GIESKES: Yeah. Similarly, there is

the disconnection.

PRESIDING MEMBER BOYD: I thought we wrote a letter.

MS. BAKKER: Yeah.

MR. HACKETT: Did they? Okay. Good, good.

PRESIDING MEMBER BOYD: We took your recommendation seriously right away.

MR. HACKETT: I was kind of surprised when a couple of stake holders out there said they hadn't heard from us.

MS. BAKKER: They may not have liked our letter because we said we supported pipeline capacity, not the specific pipeline. But I should think they would appreciate that.

MR. HACKETT: I guess in the current round they just didn't hear it I suppose.

PRESIDING MEMBER BOYD: Scott needs more help.

MR. MATTHEWS: I need more help.

PRESIDING MEMBER BOYD: If Scott needs help it means we need help.

MS. BAKKER: Thank you.

DR. WILLIAMS: i was thinking a lot about my colleague, not his idea to make a lot of

money selling this. So in gasoline in schools, but we were talking about infrastructure issue. And in sort of thinking about it from the ports perspective, if you have a limited amount of land and you're trying to judge between containers and oil, there's some options with oil.

Containers you're going to have to sell the land to put them on. There's just no other choice. You can't ship it inland. I mean it's got to get off the boat and on with the dock. But oil of course has the advantage that you can build a pipeline out further off the coast. There's certain facilities out there, those islands out there, right? They pump directly inland.

And wondered about the regulatory and economic barriers. If there's enough income to be made from the ports' perspective, or from somebody else's perspective, you know, is it impossible to build the new facility off the coast? And if not in California, what about in Mexico? And what's the plumbing like between here and Mexico?

MR. GIESKES: I think that's a valid point you raise, and we don't pretend to be experts in handling. But I think it's a matter of push back and the voice of the petroleum industry

not being sufficiently hurt. I mean the ports say, well, we propose this (indiscernible) project. The industry did not respond.

And now you guys, now it's too late. We're giving this land away to the (indiscernible). And there is a lot that can be done because in places like Singapore or Hong Kong, I'd rather them to handle twice the containers on half the land. And it's a matter of union conditions and work conditions, etcetera. It's not as bleak a picture as being painted.

But I think it's just a matter of the container companies are very well organized, represent their interest very well. The oil industry doesn't do that.

MR. HACKETT: It's interesting to hear an economist perceptive on that whole issue.

MR. WILLIAMS: I'm a little frightened to think that some report here is that the price volatility is due to the Longshoreman's Union in Long Beach. Maybe that's what it is.

PRESIDING MEMBER BOYD: Well, I'm recommend to recommend, you know, building things in other states or countries because we get accused of exporting our pollution for one,

although they could build them as clean. But also, it doesn't do as much for the California economy as doing things inside California would do. And the economy is kind of sour right now.

And you can't do a lot of positive economic things, or environment things, when the economy is down. So if we want to do more quality of life and positive environmental things, we need to have a health economy. And you do that by providing jobs and things in California. But we're torn here all the time about, you know, where to build facilities and what have you.

And it's hard to take advantage of existing infrastructures that could be put to other uses when people want to see them gone. So we all struggle with that.

MR. VERLEGER: I have two thoughts, one, I keep hearing people say the petroleum industry, and yet we have -- quite often what you're talking is decisions of individuals companies. And each individual company ought to -- the shipping company makes their decisions. Certainly, shipping companies are exempted from antitrust laws, international antitrust laws, more than oil companies.

Probably we want to encourage companies, you know, to join together and decide things about this. In that context, listening to Tony's presentation this morning about how individual entrepreneurs have come in and seized the opportunity to essentially acquire land in Martinez and, you know, where there were refineries and so on. You know, it would suggest to me that it's going to happen.

That if doesn't happen necessarily in Los Angeles, I was a witness of a lawsuit not too long ago and I learned there were a couple of petroleum tanks in San Diego Harbor that were accessible by sea, but you couldn't take gasoline there now. Well, why doesn't somebody -- you know, sooner or later somebody will go in and fix them up, put the right investment in so the emissions will be less, and everybody will be happier, and they'll ship them from jet fuel to gasoline or jet fuel and gasoline, drain dry tanks.

And, you know, over time the market will address these, you know, as long as the Port of Long Beach or some authority doesn't have a higher threshold or something, a penalty, for being a

petroleum tank facility. And presumably, the court understands that gasoline is sort of necessary to make for a successful operation of the whole economy.

PRESIDING MEMBER BOYD: It give the latter points a question mark.

MR. VERLEGER: Well, I don't know.

MR. GIESKES: If you take a really long term view at the petroleum logistics for California, you could imagine a situation where it becomes an input center for petroleum products because that's a shallow port that has lots of land for tankage, and you would interconnect to (indiscernible) come in through the bay. And alternatively then the LA basin, with it's (indiscernible), and potentially some petroleum reserves created tankage from the power stations would become the major crude oil import center.

And that sort of picture, if you visualize it, requires work to get there. And meanwhile, opportunities are being lost. I mean once the land, one, two, three it's gone, it's gone. And there some active role that I think he needs to fulfill now and in the next coming years to have a sustainable petroleum infrastructure ten

to 20 years from now.

MR. VERLEGER: The other thing is always there's the Longhorn Pipeline, and I'm not quite sure what it is, but it's always been --

MR. GIESKES: We just brought it up.

MR. VERLEGER: I was out of the room. Coming up to Texas and then finally coming over towards, you know.

PRESIDING MEMBER BOYD: Brian.

MR. COVI: Brian Covi. I've got a question I guess for Bob Hermes, because he's so much more knowledgeable about the rest of the United States. We tend to focus a lot on talking about California. Speaking a couple minutes ago, talking about new refinery capacity, what do you think about the relative costs or likelihood of building a new refinery in California versus say Arizona?

MR. HERMES: A new refinery, I doubt any new refinery is going to be built anywhere in the US, because the economics of expanding existing facilities, as difficult as it may be, they're just overwhelming because you have so much infrastructure involved. That, you know, the first million dollars you spend on a new refinery

basically earns no return. It's only the second day in that you start making any money off of.

So it's a lot better just to concentrate the investment in the portions that make money. I doubt that any refinery in Arizona will be built for that reason among others.

MR. COVI: And the same logic would apply to California as well?

MR. HERMES: Yes.

MR. COVI: Thank you.

PRESIDING MEMBER BOYD: Here comes a question.

MR. KAVALEC: Chris Kavalec from CEC. We've been talking a lot about the impact of a deeper forward market on price volatility. And I guess my question for the Panel is, what sense do you have of the relationship between the depth of the forward market and the severity of price spikes? In other words, if we had twice as many trades taking place, or ten times as many forward trades taking place, what impact would that have on volatility in California?

DR. WILLIAMS: That was a question I tried to answer yesterday morning. And I would say it will have minimal effect, because the

prices are pretty much sensible, and only if the prices are very different will there be a different price signal. If every consumer started to buy gasoline forward, or on some average cost pricing system, that could be very different.

But that's not we're not talking about here. It's whether marketers are buying forward or not. I don't see the depth of the forward market is changing any signals particularly to them. And so I don't think it will matter that much. It will matter a little, but it won't matter very much.

MR. VERLEGER: I would add that if you compare energy markets -- my hope was to find a way, quoting Ben Franklin, it's a beautiful theory, mugged by a gang of brutal facts. But to find someway to mobilize enough demands so that you could really create a forward of some size. Natural gas provides you an example of what can happen if you do have that. We went into this last winter with record high inventories, and we had a price spike because it was so cold.

But if you look at open interest on the NYMEX, both for the NYMEX futures contracts and the NYMEX change a swap, which is one fourth of a

futures contract, and you add the two together, there was a very large build up and there was a huge contango in the market, which provided the incentive that Professor Williams has been teaching, is what you need to hold it.

And what happened is those people built storage facilities without the help of the state or anything, and they stored the gas. And then that gas was then sold into the market and mitigated the price spike. But there was a market, they were in user buyers. There were utilities. There were power plants and so on.

So that market was much more, what I call, efficient, an opportunity market. That's what you need. And, unfortunately, that doesn't look like what we're going to get.

PRESIDING MEMBER BOYD: Now I'm going to slightly modify something Phil just said, and that is in California you said not without the help of the state. But in reality, in looking at the gas prices of 2000, the state did put a lot of effort into studying the situation. A lot of us managed to convince the administration not to do for gas what had been done for electricity.

But what we did do is actively support

in front of any and every regulatory body the construction of storage facilities, etcetera, and all the infrastructure. And we actually did accelerate by going to FERC and going to local districts and everything else. The construction of pipelines and gas facility, etcetera, etcetera. And, you know, that can be done in this arena as well.

MR. VERLEGER: If you go back, I filed with FERC and objection to their proposed remedy on just ignoring the potential gas prices paid. If you go back and you look at the inventory data on natural gas, and the price spreads were observed in California during the crisis in 2000, versus prior, you precisely the relationships you'd expect, very low inventories and very high spreads for prompt supplies of natural gas or forward supplies.

Now, does that say that the market was working efficiently globally? No. It just says that what was happening in California was consistent with low inventories and high prices. It does not get back to the question of whether somebody restricted the flow of natural gas into California, or whether there's an adequate source

capacity.

One of the key solutions to that is just what you did. That was exactly the right thing. Fill the storage capacity as fast as possible and hope it gets filled.

PRESIDING MEMBER BOYD: We didn't blow our horn, and we didn't take on FERC, but maybe we deserve more credit that we didn't get. Well, people in the Bay Area were hogging all the press.

MR. HAGGQUIST: I just want to agree with Dr. Williams on this one because of the physical nature of this business in trying to bring cargos in. Maybe that's true, maybe all you need is the storage and then the cargos will come earlier. But forward market signals are something we've heard over and over from stake holder after stake holder that there's no way to hedge cargo coming into California.

So if you leave from the economist point of view and sit yourself down inside a company, an oil company, you almost have to leave all that theory outside because you're going to get that cargo from down there in Australia up to here. And you've got to be able to hedge that position and create more competition in the market place.

We don't have the same view on this overall.

DR. WILLIAMS: I'm going to object. We were at the same interviews. All traders said if only they could have some more trading opportunities they would enjoy it. But I think a number at times said that they could hedge cargo. The market was not that illiquid. And they could certainly hedge partial cargos, which can come in. So we get back to where we started yesterday morning, is the cup half full or half empty?

I guess in this case it's still good news if there's a reason they function in forward market in California. And that does not appear to be the major impediment to cargos not coming in.

MR. HAGGQUIST: One last thing on that, I'm old enough to have been around when the NYMEX came on stream, and they were talking about this great idea of creating a forward market in heating oil in New York Harbor back in the early '80s. What's a futures market? What does that mean? I didn't know what a futures market was. I said you can sell diesel today, or next month, or two months from now, or three months from now?

They said, yeah. Well, that's great, you know. But I just come from the west coast and

I bring diesel around and sell it three months later and lock it in. It's a great idea. But step one, you had to have some tanks, you see. And NYMEX is probably -- Mr. Laughlin, you're not still there are you?

MR. LAUGHLIN: Yes, I am.

MR. HAGGQUIST: You are still there.

PRESIDING MEMBER BOYD: I think I heard him just attempt to get in there.

MR. HAGGQUIST: Yeah. That's what I wanted, can you talk a little about that interrelationship, the flow of the commodity and the forward market, futures market?

MR. LAUGHLIN: Yeah. I think that, you know, having a more active futures market really adds to the efficiency of the system. And in the long run I think that's really what California is going to have to look to as well, is to create some type of more of a, you know, active forward market so that, you know, companies can make plans on a three to six months basis rather than a one month basis.

And I think that, you know, the price spikes can be mitigated through, you know, the ability to trade in a three to six, to nine month

time frame, as opposed to in the spot market, or what limited forward liquidity is available currently in California, which is maybe only one to two months forward. And I think that, you know, certainly for companies that might want to participate in California and start to perhaps, you know, the European or Asian refineries that are able to make the California spec gasoline, if they don't have the price that they can lock in, say three months forward, they probably in the long run aren't going to be able to participate in California on a regular basis.

And it becomes more of just an ad hock type of participation in the California market, you know. When the price spikes they might participate as opposed to a longer term commitment to supply in California, you know, year in and year out. I think that, you know, certainly it would be worth exploring. And, you know, NYMEX might be able to help as well to try and get more future liquidity in the gasoline market in California.

MR. HAGGQUIST: And along that line, I mean it's not so much to make it easy for traders so to speak. Everybody in the market is a trader

in some way or another, but they name themselves. It's just a matter of how much of an incentive do you need to put that ship on the water if it's going to be an input? How much of an incentive? Does the price go up ten cents before you get the guts to float it?

Well, in New York Harbor it only needs to be half a cent, because you know you can lock it in. You know what you freight rate is, you know what your FOB cost is in Rotterdam. Half a cent, throw that $75,000 in the bank, you know, on a cargo. So one penny on a cargo, on a 300,000 barrel coming to California is, what, over $125,000 profit. It's not bad.

So if you could take you barrels right now and sell them into this market now, and know what your revenue side is going to be, you could lock in a penny or two pennies known. You don't have to wait the ten, 20 cents spike. So the advantage of this thing is it reaches out as a vacuum cleaner and sucks up all the components in the world at known values. That's what it does.

DR. WILLIAMS: I think you're both underestimating what's already out there. And what's already out there, say for three or four

months, is an NYMEX gasoline contract New York Harbor, and it's price relationships will be very similar to a three or four month California. And we've already got a very good product there. It's called NYMEX.

And if anybody wants to hedge three or four months out, they can use that existing market as it gets to one month, then they go into the California pipeline market. And that's going to beat anything else because it's already got the liquidity. And NYMEX, they're a part of that.

MR. COVI: I have a question for Mr. Brusstar. Your swap contracts for LA have been on the market now for about five months. And it's my understanding there hasn't been a single contact sold. I know a lot of the contracts that NYMEX were in the markets, NYMEX (inaudible) wasn't too successful. Do you have any intuition or thoughts as to why that's been the case?

MR. BRUSSTAR: Well, part of the problem is that, you know, California swaps markets that exist is not very liquid and, therefore, you know, the current market that exists, you know, has not, you know, chosen to use the NYMEX for clearing those swaps. And right now, you know, to the

current market I guess is being satisfied by the existing network of cash market brokers in California.

But certainly, you know, the liquidity that we've seen so far, you know, it doesn't really indicate, you know that in the future something more couldn't be done to kind of encourage, you know, west coast participants to start, you know, using a futures contract.

MR. COVI: Did you do an analysis before the fact as to the current volume of swaps that take place in California before you decided to venture into those contract?

MR. BRUSSTAR: I mean as far as measuring the liquidity in the existing swaps market, it's very hard to get good estimates. And many of the brokers, you know, don't want to disclose their proprietary information. But you can get anecdotal sense by talking to a number of the traders that try and buy and sell those swaps. And according the traders that we've spoken to, there's not a lot of liquidity in the swaps market in California.

And I think that's in contrast to the swaps market in the Gulf Coast where, you know,

there seems to be much more liquidity for trading swaps on Gulf Coast gasoline for instance.

MR. HAGGQUIST: Dan, could you imagine if you didn't have your storage in New York Harbor, if NYMEX did not have its storage in New York Harbor, but in lieu of that you had sort of the NYMEX that you have out here, a swaps market, devoid of storage and devoid of the guarantee physical delivery. If that were the case, would you lose much liquidity in NYMEX?

MR. BRUSSTAR: Yeah. I mean, you know, that's what makes the New York Harbor, you know, a successful, you know, hub for trading gasoline and other petroleum products is you have, you know, a very competitive, you know, tankage system. And you have a lot of your multiple participants in the market, you know, on a daily basis who are participating both on the NYMEX and in the physical market of buying and selling oil.

And, you know, we have probably, you know, in the New York Harbor there may be on any given day, you know, 25 to 50 participants in the market. Whereas, you know, on the California market the numbers may be in the area of ten market participants. So I mean you have a big

divergence there.

And I think, you know, in order spur some more competition in California it might, you know, help to try and encourage, you know, more tankage and more infrastructure there that would allow for more, you know, more competition.

MR. HAGGQUIST: One final one, how would you respond to this notion that there's also hedging mechanism, which NYMEX gasoline? Can you say a few words about basis relationship and basis risk?

MR. BRUSSTAR: Yeah. I mean the problem with California is its market is not highly correlated to New York Harbor, mainly because the gasoline specifications are quite a bit different. And the crude supply network is totally separate and different from the New York Harbor and the Gulf Coast. And there is a pretty high correlation between the New York Harbor and the Gulf Coast because there's a pipeline that links the two.

And as far as ships, it's a fairly short trip from Houston up to New York if they want to supply, you know, directly between, you know, the Gulf Coast and New York Harbor. So I mean the

correlation there is pretty high. So, you know, it's a viable alternative to hedge using NYMEX gasoline for most of the Gulf Coast.

But in California, you know, the price spikes that you've been talking about, if you look at those charts, you know, those spikes get way out of hand. And the NYMEX price spikes don't, you know, match those. And sometimes, you know, those markets can be disjointed.

DR. WILLIAMS: That's why I was saying that you need a one month forward market in California, but it's a three month that's probably highly correlated with NYMEX. So it's the combination that makes an effective forward market for California.

MR. COVI: I have a different question. Although I much enjoy talking about forward markets, it seems like when the fuel alternatives that's left on the table for us, Mr. Sparano talked about and, Bob, you recommended it. We're not talking about new refinery capacity now. But I guess we're talking about capacity creep. So we've talked a lot about this here.

I think Tom has talked about this in his presentation that it's very plausible to me that

there's the low hang that you go after first. And, you know, you go after bottleneck, bottleneck, bottleneck, every time you're down for major maintenance. And we've seen over the last seven or eight years of pretty steady about a one and a half percent per year increase in the refinery, some of which I'm sure is due to the blend stocks coming through.

Alternatively, it seems like when profits were very low in the mid '90s, and refineries weren't operating at capacity in California, these modifications were being done. Now that we're at full capacity and margins are higher, it seems like the incentive would be higher to do more refinery expansion.

So my question is, is there a limit to this? Can this go on indefinitely? Is it increasing cost curve?

MR. HERMES: And I guess theoretically it is. But if you look at historically, you wonder if that's true. I mean I've heard this supply to the Gulf Coast for a long time as well. In the last ten years there's been a million barrels a day of capacity on the Gulf Coast. So it's a whole combination of things. Most of it's

not just literally going and finding a pipe that's too small and replacing it, as the bottle necking suggests.

It's expansions that occur often when there's changes in specifications, for example with the diesel specifications coming, a lot of refiners now are putting in the facilities to put in low sulphur diesel. And often it's convenient while you're doing that to also increase crude capacity and overall capabilities of the refinery. So we see quite a few of those coming on.

A million barrels a day has been added on the Gulf Coast. And I think in the last ten years, I don't have the number readily available, but 200 something thousand barrels a day has been added in the east coast, which is also a very difficult permitting environment. And percentage wise actually about the same as the percentage increase on the Gulf Coast.

So I suppose theoretically there's a limit to it. And if you trying to grow it at five percent a year or something, I'd say you couldn't do it. But the Gulf Coast growth has been a percent and a half or so. And that's in spite of the fact that quite a few refineries are being

shut down as well. There's close to a million barrels down has been shut down. This is a net increase of a million barrels a day.

MR. GIESKES: Brian, if you a take a really long term look, in 1981 there were still 310 or so refineries in the US. Today there are 150 and it does look still the same. So what has happened is -- and that equates to about a six percent a year in capacity improvement on remaining refineries. And you're absolutely right every time, here in California for instance, one of these mandatory major changes, the CAFE II and now with CAFE III, many refiners have to make significant changes to equipment.

And they look at it and say, oh, if I have to go out for new permitting in any case I might well do this, and that and that. But you get up to, in individual refineries, you get up to certain hard limits, and certain constraints in certain units where now you've done everything you need to do.

And then even then for instance it will last maybe 20, 25 years and then it needs to be replaced simply because it's no longer safe, or you're finally down to where pitting and corrosion

have taken the toll. And at the moment you have to replace capital equipment anyway, especially if that's what happened.

MR. HACKETT: And just to be clear, if it's true that there were high refinery capital spending in the early to mid '90s, but the capacity wasn't maximized, if that's true then I would guess a lot of that though comes back to Joe's five billion for carb phase II in that time frame, which was introduced in '96.

MR. COVI: Yeah, that's true. Also, as in the Gulf, a lot of refiners shut down in California, or at least stopped making gasoline, and I'm talking about gasoline production right now. So the changes to make carb II were also compensated for a lot of those smaller refineries that stopped making gasoline altogether.

MR. HACKETT: Carb phase II shut down gasoline making refineries, and the rest of them spent a lot of money to be able to make it. Okay.

MR. COVI: A closely related question is we're almost -- looking at the data, it almost seems like refinery capacity doesn't matter to the extent that refiners can seemingly increase their capacity behind capacity by bringing blend stocks

and processing those, and pumping it into the pipeline. I talked with Drew Laughlin a little bit about this a while back, and if he's still listening, you know, I couldn't get a -- I wasn't expecting a good answer from him off the spot from Drew.

But is there a limit to the extent that refineries can effectively increase their gasoline producing capacity sort of on the side? I don't know enough about the engineering of refineries.

MR. HERMES: Well, I guess the limit in case you're just more or less importing gasoline and pushing it through, maybe doing minor operations to it. There's also different kind of feed stock imports that are pretty common on the Gulf Coast, and not so common here.

And those are ways that if you have a little bit of extra capacity in one unit that you can get more put through the system by bring in feed stocks as opposed to blend stocks applies. No processing will be done to it. It will just be put in a tank and blended to a product. Feed stock means it will be processed in a refining unit. Like vacuum gas oil for example is a feed stock.

You have excess capacity, we don't have crude capacity. You could import that and produce gasoline from it.

MR. SPARANO: May I make a comment to add to that to try to respond to the question? Refiners are confronted with another issue, even when trying to make this smaller incremental changes, and that is in some cases even what one might think are minor changes will trigger either a Title V issue or a review issue. And those are not insignificant problems for a refiner to face in terms of what occurs in the refinery's permits to operate.

Just another observation. I think my numbers are right. In 1980 there was about 18 million barrels a day capacity on refineries, all 310 of them. And now it's about 15. And the manner in which a refiner might take advantage of an intermediate feed stock throughout the country is, as Bob described it, if you have a larger cat cracker, which used to be the piece of equipment of choice to make gasoline. It's really good at that.

But with the advent of both RFG on a federal level, and our better cleaner gasolines

here, the value of the cat cracker and the material it makes, has diminished in exchange for material like alkylate, and for its air quality benefits, MTBE. Because each of those have a very minimal amount of all of the contaminants that make up the contaminates, all of the materials that make up carb specs, and each of which has been lowered to make the gasoline cleaner.

So the flexibility of California refiners in particular to bring in an intermediate that will serve the purpose has been narrowed. I'm not saying it's nothing. That's not fair. But it has been narrowed versus what it used to be. And that's one of those consequences I was trying to talk about before, I'm sure completely unintended. Nobody even probably thought of it.

But that's one of the things that occurs, and one of the prices we have to deal with when we make and use clear gasoline and bring cleaner air. I'm all for it. But I think we can do a better job of educating folks as to what's involved in that.

MR. COVI: Yeah. I brought that up because there's a lot of discussion about how nobody can make carb gasoline, or very few people

can make carb. But there's lots of so called near bob floating around that you can tweak up a little bit and make it for spec for California. A related question, again, to this related question, I'm much less concerned about competition in the industry if it what Tony Hoff tells me is true that independence can blend up in the tanks the same way that refiners can.

So I pass that as a question to the panel or some folks out here as well. If that's indeed the case, because it seems to contradict what Stillwater has told us.

MR. HOFF: Yeah. I think importers can blend the finished gasoline with components, but they're certainly not going to do it with as much ease as a refinery is. They've got to find the components, figure out which components are going to work together. It's complicated. And then they've got to locate everything and get it in, and get into the tank.

So whereas a refiner has got their system all set and it's pretty much a conveyer belt. So it can be done, but it's much more difficult.

MR. LAUGHLIN: Can I also say that the

independence, or at least small blenders, at least on the west coast, the Unocal patent scares blenders to death. Most of the refiners do try to blend around the patent. When you're a small blender, if you're in the harbor for instance, you don't have that problem. At least you're not worried about that problem.

And since the patent could hit you for quite a few cents per gallon, which a lot greater than your typical profit, you really have to worry about it. So it's so difficult to blend around the patent on the west coast today. And independent would have a very, very tough time to do it.

The refiners, you know, have a tough enough time to do it making California carb spec, and trying to blend around the patent at the same time is, you know, makes a very narrow window in specifications that you need to meet. An independent would have a very tough time doing it.

PRESIDING MEMBER BOYD: Drew asked, or his comment, raises an opportunity for me to ask the question that I wanted to ask for a while here, and was saving some appropriate time. And that is if any of you can venture an opinion on

what is the Unocal patent costing us?

MR. HACKETT: Yeah. I've got an opinion on that. I think the answer to that is something less than a penny a gallon, but it's on every gallon in California. So on 15 billion gallons, it could be a lot of money. It's less than a penny, maybe less than half. And the reason for that, it's not easy to qualify.

I sort of thought about this for a long time. What we do know is the refiners who defends the lawsuit are blending around the patent probably to 100 percent, or as much as they can. They testified at the time that their cost to blend around would be relatively minor, somewhere between .1 and .5 cent a gallon.

So there's that quantification that we heard out there. And then what we also heard was, and we continue to hear this, is that people who are potentially importers won't even both to participate in the California market. There's this whole host of issues out there, not in the least which is this Unocal patent, which if you found to be willfully infringing upon, the damages would be troubled.

And that troubled damage at this point

looks like about 17 and a half cents a gallon. So there's another data to point out. How that 17 and a half cents translates to what, you know, we're paying the gas, I'm not sure. But that's how I get to an answer that's less than a penny.

MR. LAUGHLIN: But I think that the supply issue is hard to determine how much volume might come to California and how many new players you might have, whether it be Pacific Rim players or other Gulf Coast or Western Hemisphere players that might come to California. The Unocal patent is definitely a restrictive issue when it comes to moving the (indiscernible).

And I think that the storage facilities out there would find new customers and new traders. I think that you would find a much greater push to find new players to move into the market without that patent. It really is a barrier of entry to the market.

MR. GIESKES: And, Jim, I think that's, from your perspective of your former profession.

PRESIDING MEMBER BOYD: I think we posed to death on this answer.

MR. GIESKES: Yeah. But going around the Unocal patent that you make an optimal grade

of gasoline in terms of emission control properties. So in actual fact, there's a lot of tons of unnecessary carbon and other initiative up in the air in California because people blend around these patents. Where otherwise they would blend right into (inaudible).

MR. STEVENSON: Commissioner, I'm sorry, I'm not going to answer your question. I don't have an answer.

PRESIDING MEMBER BOYD: We've got the voice of experience here.

MR. STEVENSON: But I will say to the panelist that I'm not aware -- my understanding of the five patents and molecules that we have to work is that I don't think anybody is blending around Unocal patents.

MR. HACKETT: Okay. And so you think they're at risk of infringing on the patent?

MR. STEVENSON: I'm not a lawyer. I've asked that question and I've not gotten a good answer.

PRESIDING MEMBER BOYD: Okay. Any other comments anyone wants to make? We're beginning to lose some of our folks. The hour is actually going to fill up the day. Was there any doubt of

that? Well, having panel discussions is always an asking pre-asked questions ahead of time that get asked during the course of things. These things kind of opened. But I should have known better. We could fill the time. No takers?

MR. STAMETS: No luck.

PRESIDING MEMBER BOYD: Does anybody want to make any closing remarks before I do? I guess not. So I guess I will try anyway. First, I want to thank, I mean I really want to thank everybody who's here, who's come, who spent their time, who's made a contribution. And everybody in the room in one way or another has made a contribution.

I know there's a lot of folks who work for a lot of folks who have been participants in the events here. This has been extremely interesting to me. It's very rare, I don't know about Commissioner Geesman, but it's very rare for us to get time to attend something that I have found, you know, so extremely interesting and helpful.

And hopefully Scott has gotten lots of help on the report he's going to have to draft up for us. Let me in closing though provide a little

context, maybe revisit why we're here, the '99 price spikes, the public outrage, be that right or wrong, political intervention, Attorney General investigations and findings, and result in legislation that actually said to do several things, one, look at a product from the Gulf, which wasn't the subject of today.

But although I meant to ask that question at the end of the day here. Does that offer anything here before we gotten off? Look at that SFR, and that got so interesting based on the work. But still, why don't we ask the author if we can more time and broaden the scope, which we were provided in that. That has resulted in these days of discussions of a wide variety of things.

And then the third thing we haven't finished with yet, and that's yet to come, is recommend ways -- the legislature wanted us to recommend to them way to reduce California's dependence on petroleum as another way of getting all of this spikiness and the stress and strain on the California economy.

So, the past two days, as I've said, has been redirected at the one subject, SFR, but it really is, you know, this all a system, and so you

can't help but talk about many of the connecting points, and ultimately start connecting all the dots. And that's been extremely helpful to us. We have to digest what's been presented here for the last two days.

And we have to ultimately provide recommendations, advice, counsel, to both the executive and legislative branches. And we still have to give opinions, advice and counsel to the public who's looking at us and expecting us to protect their welfare, and looking for leadership, encourage, etcetera, etcetera. And so we still have to finish all three of these issues.

And we intend to do that in the next couple of months and get back to both the Governor and the legislature, and try to provide more answers to a lot of these questions. The advance of the last 18 months and the process that's been underway here in the last 18 months, I think have contributed to already making some changes.

There's been some talk, there's been a lot of talk, about them in the past two days. There's been changes and there's been progress in addressing California's, quote, problems regarding price spikes and all that lies behind price

spikes. And as Drew said, some of us have been concerned about also the potential for super spikes, as this whole situation gets tighter, and tighter, and tighter.

Because of all the world events, and the population of California, and mother nature, and murphy, etcetera, etcetera, just continue to play a bigger and bigger role. And it's now a world economy. And I see no end to the huge increase in worldwide demand for mobility. That's means transportation ultimately gets translated in Third World Countries become Second World Countries, and then vie for more to somebody having an automobile on their own.

And so the demand on transportation fuels is just accelerating at incredible paces. They're little glitches as the world economy goes through adjustments every now and then. But overall, in my 25 plus years at looking at this, it just grows, and grows, and grows. And it's just going to continue to be a problem.

And the other thing, I'm not trying to blow California's horn, but as goes California, often go other states, other countries and what have you. So California's unique form of

gasoline, I refuse to use the B word, eventually spreads to other places. Other people want quality of life and protecting their health and what have you.

So we have to tough it out and be on the cutting edge, but maybe the market will change as others states and of the nation and dis-nation maybe move towards cleaner burning gasoline. Maybe there will be some standardization that will help. But we can't count on that, just like I can't count on my lifetime on the pathway to hydrogen solving problem we're wrestling with here.

The things we've heard over the last two days repeatedly were in the general category of infrastructure, tank storage, refinery capacity, and marine infrastructure, all of which have roles to play in helping address, not solve, but at least address some of the issues that face California. Permitting in California, always a major task, remains a major task, and effects all of these areas of infrastructure development.

And it's something we've obviously identified big time. That's something that needs to be looked at. And it's something we obviously

will pursue. The Unocal patent is unique onto itself, and we're dependent upon another federal agency to address that problem. And I better not go too far before I get myself in legal trouble, because I know I'll be before the FTC. They promise that.

And so we get to the bottom line question in my mind, is the cup half full or is the cup half empty? I really think the cup is half full. I really think that Stillwater, for all the slings and arrows they've seemingly suffered, has done a very significant service to us and to California by providing us a proposal and document that have given rise to 18 months of debate and discussion, culminating in these two days.

That have frankly helped move the ball a little bit further down the court, have brought some attention to the issue. And I think they can take some comfort, as they lick their wounds, in the fact that things are happening. And the way things happen sometimes is just by focusing attention on them. Government can get things done by just threatening to do something, but not doing it.

And the trouble, and I can say this as a 40 year veteran of government, the trouble is sometimes they actually go then and do it. And the target long since passed and they shoot innocent victims when they fire, pull the trigger. But nonetheless, we try out best. And we're going to try to digest all of this and work it into the system that we're working with.

And we will try to work within the system of government, which is difficult in and of itself, and work with out sister agencies to move some of these issues. I'm grateful for the fact that some of them dropped in on these hearings, but none of them seemed to tough it out. And it just makes our job a little harder in terms of time spent explaining.

But with one of them I had some entree, so it will make that a little bit easier. I get the feeling that the Energy Commission is going to have to act like the Trade in Commerce Department or Agency a little bit as we really look at the whole system involved here. But that's something that Commissioner Geesman and I are paid to deal with, and we'll do the best that we can.

So all I can say is I see this as an

extremely positive experience. I thank everybody for the contributions that have been made. And I look forward to us continuing to work on this issue. Now, if any of you are board and want to come back Monday in this very room, we're going to host a world oil supply conference as part of yet another project this agency has, a charge from the legislature, which is seemingly beginning to respect this place again, which wants an Integrated Energy Policy Report from us by next November.

And so that means electricity and natural gas and transportation fuel. So we are going to open that subject and I'm going to have to sit here. John gets relieved from that. I'll be joined by Chairman Keese, but that's just part of the continuing emphasis and interest in a subject of petroleum and transportation fuel that seemed to have captured us here, and it's not going to let go for quite some time.

And I guess that's part of the reason I'm here, based on that other experience with transportation fuel. This agency is deep into the subject, and as it will be for a long, long time, because all three areas work together. Energy is

a major issue. The financing of energy in my opinion is huge problem for this county, not the financing any one of the but, you know, the Enron did a terrible disservice to the country.

MR. GIESKES: And to Anderson.

PRESIDING MEMBER BOYD: And to our accountants. And so financing is withdraw from energy in general. And it's a very slippery slope, and a very steep slope. And so I think energy is a major problem for this country's economy. And the system has to be plugged together, and people are going to have to work on it. We just started turning rocks over really.

So I thank you and I appreciate this very much, and look forward to continued collaboration and success. Thank you.

(Thereupon, at 4:30 p.m., the workshop was adjourned)

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CERTIFICATE OF REPORTER

I, Peter Petty, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission Workshop; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said workshop, nor in any way interested in outcome of said workshop.

IN WITNESS WHEREOF, I have hereunto set my hand this 29th day of April 2003.